

JAN 1 9 1995

Dr. Sheila A. Schuette Monsanto Company 700 14th Street, N.W. Suite #1100 -Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Toxicology Studies on AMPA)

EPA Registration No. 524-445

Your Application Dated August 5, 1994

This acknowledges receipt of your letter dated August 5, 1994 transmitting several toxicology studies on AMPA (aminomethylphosphonic acid) the major metabolite of glyphosate. These studies have been routed for comment. Further action will await completion of scientific review and evaluation.

The FMRID numbers assigned the data accompanying this submission are as

Volume	1	43334701
Volume	2	43334702
Volume	3	43334703
Volume	4	43334704
Volume	5	43334705
Volume	6	4333 4 706
Volume	7	43334707
Volume	8	43334708
Volume	9	43555801
Volume	10	43334709
Volume	11	43334710
Volume	12	43334711
Volume	13	43334712
Volume	14	43334713
Volume	15	43334714
Volume	16	43334715
Volume	17	43334716
		-

Sincerely,

Robert J. Taylor Product Manager 25

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SYMBOL					Registratio	n pivision	(7505C)	
SURNAME V	cuelles							
DATE	118/93							

PA Form 1320-1 (12-70)

OFFICIAL FILE COPY

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

433558- OC L L 22347.40

August 5, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Submission of Supplemental Information:

Toxicology Studies on Aminomethylphosphonic Acid (AMPA)

Dear Sir.

Monsanto is submitting supplemental information on the toxicology of aminomethylphosphonic acid (AMPA), which is the major metabolite of glyphosate. These studies were not conducted to fulfill any regulatory requirement, but rather as part of Monsanto's commitment to product stewardship.

The 17-volume submission contains the following studies:

- A 90-day oral toxicity study in Beagle dogs, along with a 1-month pilot study conducted to determine dose levels and an analytical study to determine the stability of the test material (Volumes 1-3).
- A developmental toxicity study in rats, along with the dose range-finding study and analysis of the test material (Volumes 4-6).
- Three mutagenicity studies: microbial mutagenicity, a mouse micronucleus study, and a hepatocyte DNA repair assay (Volumes 7-9).
- Several avian studies, including an acute oral toxicity study with Bobwhite quail, dietary LC₅₀ studies in the Bobwhite quail and Mallard, as well as the analysis of

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AMPA Submission August 5, 1994 Page 2

test material in avian diet samples (Volumes 10-13).

 Acute toxicity to Rainbow trout and Daphnia magna, including analyses of the test material in water (Volumes 14-17).

Monsanto has previously submitted several toxicity studies on AMPA, including an acute toxicity battery (MRID 00040564) and a 90-day rat feeding study (Acc. No. 241351).

Monsanto believes that the data contained in these reports support the Agency's recent decision to remove AMPA from the tolerance expression for glyphosate.

If you have any questions, please contact me.

Sincerely,

Sheila A. Schuette, Ph.D. Manager, Regulatory Affairs

(314) 694-7248

cc: R.P. Schneider

U.S. ENVIRONMENTAL PROTECTION AGENCY Office of Pesticide Programs

MONSANTO COMPANY ATTN: RUSSELL P. SCHNEIDER 700 14TH ST., NW SUITE 1100 WASHINGTON, DC 20005

Report of Analysis for Compliance with PR Notice 86-5

Thank you for your transmittal of 08/10/94. Our staff has completed a preliminary analysis of the material. The results are provided as follows:

Your submittal was found to be in full compliance with the standards for submission of data contained in PR Notice 86-5. A copy of your bibliography is enclosed, annotated with Master Record ID's (MRIDs) assigned to each document submitted. Please use these numbers in all future references to these documents. Thank you for your cooperation. If you have any questions concerning this data submission, please raise them with the cognizant Product Manager, to whom the data have been released.

TRANSMITTAL DOCUMENT

SUBMITTED BY

The Agricultural Group of Monsanto Company 800 N. Lindbergh Blvd. St. Louis, Missouri 63167

REGULATORY ACTION IN SUPPORT OF WHICH THIS PACKAGE IS SUBMITTED

Supplemental Information

TRANSMITTAL DATE

August 5, 1994

SUBMITTED STUDY

R.D. 1251

LIST OF SUBMITTED DOCUMENTS

Volume 1: L.D. Stout, "One Month Study of AMPA Administered by Capsule to Beagle Dogs" (1991), ML-90-186, an unpublished study conducted by The Agricultural Group of Monsanto Company.

Guideline 82-1.

Volume 2: E.C. Tompkins, "90-Day Oral (Capsule) Toxicity Study in Dogs with AMPA" (1991), WI-90-354, an unpublished study by Wil Research Laboratories, conducted for The Agricultural Group of Monsanto Company. Guideline 82-1.

MRID 43334702

Volume 3: M.E. Holland, "Results of the Stability Analyses of AMPA (aminomethyl phosphonic acid) Test Material Used in a 90-Day Dog Study at WIL Laboratories (WI-90-354)" (1991), MI-90-369, an unpublished study conducted by The Agricultural Group of Monsanto Company. Guideline 82-1.

MRID 43334703

Volume 4: J.F. Holson, "A Dose Range-Finding Developmental Toxicity Study of AMPA in Rats" (1991), WI-90-247, an unpublished study by Wil Research Laboratories, conducted for The Agricultural Group of Monsanto Company. Guideline 83-3.

MRID 43334704

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MRID <u>43334705</u>

Volume 6: M.E. Holland, "Results of the Analyses of Corn Oil Samples From WIL Research Laboratories for AMPA (aminomethyl phosphonic acid" (1990), ML-90-290, an unpublished study conducted by The Agricultural Group of Monsanto Company. Guideline 83-3.

MRID <u>43334706</u>

Volume 7: Y. Shirasu, M. Moriya, and T. Ohta, "CP50435: Microbial Mutagenicity Study" (1980), ET-80-402, an unpublished study by The Institute of Environmental Toxicology, conducted for The Agricultural Group of Monsanto Company. Guideline 84-2.

MRID <u>43334707</u>

Volume 8: L.D. Kier and S.D. Stegeman, "Mouse Micronucleus Study of AMPA" (1993), ML-90-404, an unpublished study conducted by The Agricultural Group of Monsanto Company. Guideline 84-2.

MRID <u>4**3**334708</u>

Volume 9: J.P. Bakke, "Evaluation of the Potential of AMPA to Induce Unscheduled DNA Synthesis in the *in vitro* Hepatocyte DNA Repair Assay Using the Male F-344 Rat" (1991), SR-91-234, an unpublished study by SRI International, conducted for The Agricultural Group of Monsanto Company. Guideline 84-4.

 $MRID^{\dagger}$

433558-0

Volume 10: S. Campbell, J. Grimes, G.J. Smith and S.P. Lynn, "AMPA: An Acute Oral Toxicity Study with the Northern Bobwhite" (1991), WL-90-397, an unpublished study by Wildlife International conducted for The Agricultural Group of Monsanto Company. Guideline 71-1.

MRID 43334709

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MRID 43334710

Volume 12: R.D. Long, G.J. Smith, J.B. Beavers, and S.P. Lynn, "AMPA: A Dietary LC₅₀ Study with the Mallard" (1991), WL-90-399, an unpublished study by Wildlife International conducted for The Agricultural Group of Monsanto Company. Guideline 71-2.

MRID <u>433347//</u>

Volume 13: S. Schermes and K.W. McCune, "Results of the Analyses of Avian Diet Samples for AMPA (aminomethyl phosphonic acid)" (1990), ML-90-400, an unpublished study conducted by The Agricultural Group of Monsanto Company. Guideline 71-2.

MRID 433347/2

Volume 14: J.H. Bowman, "Acute Toxicity of AMPA to Rainbow Trout (Oncorhychus mykiss)" (1991), AB-90-402, an unpublished study by ABC Laboratories, conducted for The Agricultural Group of Monsanto Company. Guideline 72-1.

MRID 43334713

Volume 15: M.E. Holland, "Results of the Analyses of AMPA in a 96-Hour Acute Study with Rainbow Trout" (1990), ML-90-403, an unpublished study conducted by The Agricultural Group of Monsanto Company. Guideline 72-1.

MRID 43334714

Volume 16: D. Burgess and S.L. Hicks, "Acute Toxicity of AMPA to Daphnia magna" (1991), AB-90-401, an unpublished study by ABC Laboratories, conducted for The Agricultural Group of Monsanto Company. Guideline 72-2.

MRID <u>43334715</u>

Volume 17: M.E. Holland, "Results of the Analyses of AMPA in a 48-Hour Acute Study with Daphnia magna" (1990), ML-90-403, an unpublished study conducted by The Agricultural Group of Monsanto Company. Guideline 72-2.

MRID <u>433347/6</u>

COMPANY OFFICIAL:

Manager, Regulatory Affairs

COMPANY NAME:

MONSANTO COMPANY

COMPANY CONTACT: Dr. Russ Schneider (202) 783-2460

U.S. ENVIRONMENTAL PROTECTION AGENCY Office of Pesticide Programs

MONSANTO COMPANY ATTN: RUSSELL P. SCHNEIDER 700 14TH ST., NW SUITE 1100 WASHINGTON, DC 20005

Report of Analysis for Compliance with PR Notice 86-5

Thank you for your transmittal of 08/10/94. Our staff has completed a preliminary analysis of the material. The results are provided as follows:

Your data submittal was found to be partially in compliance with the standards for submission of data contained in PR Notice 86-5, with the exceptions noted below. A copy of your transmittal bibliography is enclosed, annotated with the Master Record ID's (MRIDs) assigned to each document accepted. Please use these numbers in all future references to these documents. If deficiencies were found which apply to individual accepted studies, they are listed below following the applicable MRID. Any document which has been assigned a MRID has been accepted under PR Notice 86-5. comments related to a MRID appear on this report, they are provided for your information and reference when preparing future submissions. Some individual documents were not acceptable, and all copies are being returned to you for correction for the reasons indicated below. These rejected studies have been assigned separate identification numbers which are annotated on both the enclosed bibliography and the rejected document labels. The rejected studies and their deficiencies are described below.

Rejected study [09] :

EPA's Good Laboratory Practice (GLP) regulation requires a 40 CFR 160.12 submission of a true and correct statement of compliance or non-compliance with the GLP requirements. An acceptable statement must address directly the study's compliance or non-compliance with the GLP regulation, without any disclaimers, and must describe the study submitted, not the level of knowledge, understanding or belief of those who sign the statement. Qualifiers or disclaimers such as "based on someone else's signed statement," or "in the absence of any knowledge to the contrary," or "to the best of the signer's knowledge and belief" are unacceptable.

The GLP compliance statement provided in this study contains unacceptable language of the kind described above. You must eliminate the unacceptable language from the statement of GLP compliance or non-compliance before we can accept this study for further processing.

TRANSMITTAL DOCUMENT

SUBMITTED BY

The Agricultural Group of Monsanto Company 800 N. Lindbergh Blvd. St. Louis, Missouri 63167

REGULATORY ACTION IN SUPPORT OF WHICH THIS PACKAGE IS SUBMITTED

Supplemental Information

TRANSMITTAL DATE

August 5, 1994

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MRID REJECT (09)

Volume 10: S. Campbell, J. Grimes, G.J. Smith and S.P. Lynn, "AMPA: An Acute Oral Toxicity Study with the Northern Bobwhite" (1991), WL-90-397, an unpublished study by Wildlife International conducted for The Agricultural Group of Monsanto Company. Guideline 71-1.

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MRID <u>433347/6</u>

COMPANY OFFICIAL:

Sheila A. Schuette, Ph.D. Manager, Regulatory Affairs

COMPANY NAME:

MONSANTO COMPANY

COMPANY CONTACT:

Dr. Russ Schneider (202) 783-2460

JAN 1 9 1995

Dr. Sheila A. Schuette Monsanto Company 700 14th Street, N.W. Suite #1100 Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Reduce PHI For Pome Fruit To 1 Day) EPA Registration No. 524-445 Your Application Dated November 23, 1994

This acknowledges receipt of your amendment requesting reduction of the pre-harvest interval for pome fruit to 1 day. The amendment has been routed to the proper discipline for comment. Further action will await completion of scientific review and evaluation.

Sincerely,

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Robert J. Taylor Product Manager 25 Fungicide-Herbicide Branch Registration Division (7505C)

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SURNAME) U COULLET				5
DATE 1/48/95	*************************			
EPA Form 1320-1 (12-70)				OFFICIAL FILE COPY

Please read instructions on reverse before completing form.	Form A	pprovad. OMB No. 2070-006	60. Approval expires 2-28-95
United State	rs ·	Registration	OPP Identifier Number
SEPA Environmental Protect	tion Agency	x Amendment	219298
Washington, DC	20460	Other	<u>L</u> 13230
Applica	tion for Pesticide - Sec	ction I	
1. Company/Product Number	2. EPA Product Ma	inager 3. P	roposed Classification
524-445	Robert J.	. Taylor x	None Restricted
4. Company/Product (Name) Roundup® Herbicio	e PM# 25		
5. Name and Address of Applicant (Include ZIP Code)	6. Expedited Re	velw. In accordance with	FIFRA Section 3(c)(3)
Monsanto Company		t is similar or identical in co	imposition and labeling
700 14th Street, N.W., Sui Washington, DC 20005	EPA Reg. No.		
Check if this is a new address	Product Name		
	Section - II		
XX Amendment - Explain below.	Final print	ed labels in repsonse to	
`	Agency te	tter deted	".
Resubmission in response to Agency letter dated	"Me Too"	Application.	
Notification - Explain below.	Other - Ex	tplain below.	•
Explanation: Use additional page(s) if necessary. (For sec	tion I and Section II.}		
Cultural de la			
Submission of a supplementa preharvest interval.	al label to reduce	the pome fruit	•
promuted interval.			
<u> </u>	Section - III		
1. Material This Product Will Be Packaged In:		· - ·	
Child-Resistant Packaging Unit Packaging	Water Soluble Packaging	2. Type of Containe	r
Yes	Yes	Metal X Plastic	
x No x No	x No	Glass Paper	
Certification must pe submitted If "Yes" No. per Unit Packaging wgt. contains	If "Yes" No. per Package wgt contain	- - -	Specify)
Location of Net Contents Information 4. Size(s)	Retail Container	5. Location of Label Directi	ons
Label X Container Val	ious	X	
i. Manner in Which Label is Affixed to Product Lith	lograph X Oth oer glued notifed	er vinyl glued	
	Section - IV		
. Contact Point (Complete items directly below for identifice	ation of individual to be contacted	l, if necessary, to process this	s epp('cation.)
lame you are a second	Title Agricultural	Regulation	
Dr. Russell P. Schneider	Director	(202) 783-2460
Certifi	cation		6. Cath Application
I certify that the statements I have made on this form a I acknowledge that any knowlingliy false or misleading both under applicable law.		•	(Stamped)
Signature	3. Title	 .	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Shila Q Silveto	Manager, Regula	tory Affairs	16
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Typed Name 'Sheila A Schuette Ph D	5. Date		"""
Sheila A. Schuette, Ph.D	5. Date Nav. 23, 19	94	

PAPERMORK REDUCTION ACT MOTICE and INSTRUCTIONS

PAPERMORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and mointaining the data needed, and completing and reviewing the collection of information. Send community regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 N Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Ranagement and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];

2. Confidential Statement of Formula (EPA Form 25/0-4);

3. Formulator's Exemption Statement (EPA form 8570-27);

4. Five copies of draft labeling;

5. Three copies of any data submitted;

6. Authorization letter where applicable;

7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft Labels with all applications for new registration. Such draft Labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in much a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x.11 inch paper for submission. Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

- Company/Product Number Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
- 2. EPA Product Ranger 1f known, fill in the name and PR number of the EPA Product Ranger.

3. Proposed Classification - Specify the proposed classification of this product.

- 4. Product Name Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
- 5. Name and Address of Applicant The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.

6. Expedited Review - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or exercise to existing registrations, that are similar or identical to other posticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment); for a resubmission in response to an Agency Letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

Subject of submission - Check the applicable block and provide the Agency Letter date if appropriate. Provide a brief
exploration of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "swend the
Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach
a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable anendments.

Type of reckenings. Check: the appropriate block if your product will be packaged in the indicated packaging types.
 Indicate the vize of the individual packets and number per retail container.

2. Type of Ectail Container - Indicate type of container in which product will be marketed.

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5. location of Net Contents - Specify the net contents of all retail containers for your product.
4. Size(s) of Recall Container - Specify the net contents of all retail containers for your product.

5. Location of the Directions + Indicate the location of the use directions for your product.

6. Manner Shiphigh label is affixed to product - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "mertoo," reregistration, etc.
1-5. Self-Registration.

6. EPA Use Only.

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

November 23, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor Product Manager (25)

Subject:

Roundup® Herbicide (EPA Reg. No. 524-445)

Submission of a Supplemental Label:

Reduction in Pome Fruit Preharvest Interval

Dear Sir:

Monsanto is submitting the enclosed supplemental label for Roundup® herbicide, which will allow a reduction in the preharvest interval (phi) from 14 days to 1 day. The current use of glyphosate on pome fruits with a 14-day phi is supported by data contained in MRID 00108129; Monsanto believes that these same data support a 1-day phi. Specifically, the following information has been considered:

- Residue trials were conducted on two varieties of apples and two varieties of pears; apples and pears are the representative commodities of the pome fruits crop group.
- The residue trials were conducted using 3 applications at 8 lb/A. This exaggerated rate is three times (3X) the labeled application rate. The preharvest interval was 1 day...
- No detectable residues (< 0.05 ppm) of either glyphosate or AMPA were detected in any of the fresh samples.
- Low residues of glyphosate (≤ 0.08) were found in one of the treated dried pear samples; this level is below the current pome fruit tolerance of 0.2 ppm. No

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TELEPHONE: (202) 783-2460

FACSIMILE: (202) 783-2468

Pome Fruit PHI November 23, 1994 Page 2

residues of AMPA were found in the dried pome fruit samples.

 Residue data from a number of other tree crops supports the conclusion that very low or non-detectable residues will be found following post-directed treatment with glyphosate.

In conclusion, the residue data contained in MRID 00108129 demonstrate that reducing the preharvest interval for pome fruit from 14 days to 1 day will not result in residues that exceed the established tolerance of 0.2 ppm. Monsanto therefore requests that the Agency review and approve the enclosed supplemental label.

If you have any questions regarding this submission, please contact Dr. Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D. Manager, Regulatory Affairs

Shula Q. Schuld

(314) 694-7248

cc: R.P. Schneider L.L. Gingerich

United States Environmental Protection Agency Washington, DC 20460

Form Approved OMB No. 2070-0060 Approval Expires 11-30-93

SEPA Certification with Respect to Citation of Data

Applicants Name and Address .Monsanto Company	EPA File Symbol/Registration Number 524-445						
700 14th Street, N.W., Suite 1100 Washington, DC 20005	Product Name Roundup⊕ Herbicide						
	Date of Application November 23, 1994						

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

- This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of apropval of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)
- 2. I certify that, for each study cited in support of this application for registration that is an exclusive use study,
 - * I am the original submitter*; or
 - | I have obtained the written permission of the original data submitter to cite that study*
- 3. I certify that, for each study cited in support of this application for registration that is not an exclusive use study:
 - a. |x | I am the original data submitter*; or
 - I have obtained the written permission of the original data submitter to cite that study*; or
 - b. | I have notified in writing the companies that have submitted data I have cited to support this application and have offered to: (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)
 - All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)
 - Those companies that have submitted the studies which I have cited (Selective method*)

ignature	Name and Title	Data	
Shula a School	Sheila A. Schuette, i Manager, Regulatory	Ph.D.	
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nature	Name and Title	Date	

JAN | 9 1995

Dr. Sheila A. Schuette Monsanto Company 700 14th Street, N.W. Suite #1100 Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Control of Weeds and Brush) EPA Registration No. 524-445 Your Application Dated December 15, 1994

The labeling referred to above, submitted in connection with registration under the Pederal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. Please submit five (5) copies of your final printed labeling before you release the product for shipment. A stamped copy of labeling is enclosed for your records.

Sincerely,

MU

Robert J. Taylor Product Manager 25 Fungicide-Herbicide Branch Registration Division (7505C)

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP* HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.

ROUNDUP®
Herbicide by Monsanto

EPA Reg. No. 524-445

FOR CONTROL OF ANNUAL AND PERENNIAL WEEDS AND WOODY BRUSH

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

@Roundup is a registered trademark of Monsanto Company.

kitisaan oo laa katalisan oo ka

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup herbicide for essential product performance information.

ACCEPTED JAN 19 1995

Under the Federal Insecticide.
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under
EPA Reg. No. 514-445

22 1

RECOMMENDATIONS

This product may be used to control or partially control the listed annual weeds, perennial weeds and wood brush. Refer to the label booklet for Roundup herbicide for crops, sites and use patterns where this product may be used.

Apply 1 to 1.5 quarts of this product per acre to control the following annual weeds: Alexandergrass or creeping signalgrass, arrowleaf sida, Brazilian pusley, bristly starbur, burgherkin, bur cucumber, coffee senna, eastern black nightshade, hairy signalgrass, prostrate spurge, redweed, smallflowered alexandergrass, spotted spurge, and tropic croton.

Apply 2 to 3 quarts of this product per acre to control the following perennial weeds or woody brush: perennial phase of smallflowered alexandergrass, alexandergrass or creeping signalgrass, hairy signalgrass, arrowleaf sida, and eastern black nightshade; goosegrass; primrose willow.

Apply 3 to 5 quarts of this product per acre to control the following perennial weeds or woody brush: smutgrass, Brazilian pepper and the perennial phase of Brazilian pusley.

Read the "Limit of Warranty and Liability" in the label booklet for Roundup herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

©Monsanto Company 1994

MAP

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

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Sheila A. Schuette, Ph.D.

5. Date

12/15/94

PAPERMORK REDUCTION ACT MOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PN-223, U.S. Environmental Protection Agency, 401 N Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, and use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];

2. Confidential Statement of Formula (EPA Form 8570-4);

3. Formulator's Exemption Statement (EPA Form 8570-Z7);

4. Five copies of draft labeling;

5. Three copies of any data submitted;

Authorization letter where applicable;

7. Matrices where applicable. Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed tabel. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be wounted on 8.5 x 11 inch paper for submission. Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant. Block A - Check the appropriate action for which you are submitting this form.

- SECTION I This section must be completed, as applicable, for all registration actions.

 1. Company/Product Number Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product
- EPA Product Manager If known, fill in the name and PM number of the EPA Product Manager.

3. Proposed Classification - Specify the proposed classification of this product,

4. Product Name - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.

5. Name and Address of Applicant - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.

6. Expedited Review - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to smend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency Letter, for notifications to the Agency, for the submission of final printed labeling; for reregistration and for any other action that pertains to a specific EPA-registered

explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; peneral label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted: in connection: with new registration or applicable generalments

. Type of Packaging - Check the appropriate block if your product will be packaged in the indicated packaging types.

indicate the size of the individual packets and number per retail container

2. Type of Rotail Container - Indicate type of container in which product will be marketed. " "Edition of Net Contents - Specify the net contents of all retail containers for your product."

to :Size(s) of Metail Container - Specify the net contents of all retail containers for your product.

5. Assition of the Directions - Indicate the Location of the use directions for your product.
6. Representational interpretation of the use directions for your product.
6. Representation of the label is affixed to product indicate the method product label is attached to retail container.

SECTION IY (Contact: Point) -- This Section must be completed for all applications for Registration actions, i.e., new products registration, resultsission, "me-too," reregistration, etc. 1-5. Self-explanatory.

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6. EPA Use Only.

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EPA Form 8570-1 (Rev. 12-90) Previous editions are epecials the previous form 8570-1 (Rev. 12-90)

Monsanto



Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

December 15, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup® Herbicide (EPA Reg. No. 524-445)

Supplemental Label for Control of Annual and Perennial Weeds

and Woody Brush

Dear Sir.

Enclosed for Agency review and approval are five (5) copies of a supplemental label for use of Roundup herbicide to control additional annual and perennial weeds and woody brush. Rate recommendations for each species are provided.

Monsanto requests that the Agency approve and stamp the enclosed supplemental label. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed.

If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D. Manager, Regulatory Affairs

Sluba Q. Schuetto

(314) 694-7248

United States Environmental Protection Agency Washington, DC 20460

Form Approved OMB No. 2070-0060 Approval Expires 11-30-93

SEPA Certification with Respect to Citation of Data

Applicants Name and Address	EPA File Symbol/Registration Number 524~445				
Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005	Product Name Roundup® Herbicide				
	Date of Application December 15, 1994				

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

- 1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of apropval of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)
- 2. I certify that, for each study cited in support of this application for registration that is an exclusive use study.
 - | I am the original submitter*; or
 - | | I have obtained the written permission of the original data submitter to cite that study*
- 3. I certify that, for each study cited in support of this application for registration that is not an exclusive use
 - a. |x| I am the original data submitter*; or
 - | | I have obtained the written permission of the original data submitter to cite that study*; or
 - b. | | I have notified in writing the companies that have submitted data I have cited to support this application and have offered to: (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)
 - 1 | All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)
 - 1 | Those companies that have submitted the studies which I have cited (Selective method).
 - * A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the

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Signature	Name and Title	Date	1.00	
PA Form 8570-29 (Rev-7-91)		<u> </u>		_

JAN 1 9 1995

Dr. Sheila A. Schuette Monsanto Company 700 14th Street, N.W. Suite #1100 Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Label for Seed Production of Roundup Ready Cotton) EPA Registration No. 524-445 Your Application Dated October 31, 1994

The amendment referred to above, submitted in connection with registration under PIFRA sec. 3(c)(7)(A), is acceptable provided that you:

- 1. Submit and/or cite all data required for registration/reregistration of your product under FIFRA sec. 3(c)(5) and sec. 4 when the Agency requires all registrants of similar products to submit such data.
- 2. Submit five (5) copies of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIPRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Sincerely,

رردسا

Robert J. Taylor Product Manager 25 Fungicide-Herbicide Branch Registration Division (7505C)

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup®, container labels, and this supplement.

ROUNDUP® Herbicide by Monsanto

EPA Reg. No. 524-445

USE ONLY FOR SEED PRODUCTION OF COTTON WITH THE ROUNDUP READY GENE $A \subset C \to P \to D$

Keep out of reach of children.

WARNING! AVISO!

Under the Federal Insecticide. Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No.

JAN | 9 1995

In case of emergency involving this product, call collect, day or night, (314) 694-4000.

Roundup[®] is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES, AND APPLICATIONS INSTRUCTIONS" sections of the label booklet for Roundup for essential product performance information.

NOTE: THIS PRODUCT MAY BE USED FOR CONTROL OF NON-GLYPHOSATE TOLERANT COTTON IN PRODUCTION FIELDS OF COTTON CONTAINING THE ROUNDUP READY™ GENE. SEVERE INJURY OR DEATH WILL RESULT IF COTTON VARIETIES WHICH DO NOT CONTAIN THE ROUNDUP READY™ GENE ARE SPRAYED WITH THIS PRODUCT. AVOID CONTACT OF THE SPRAY WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS AND TREES, OTHER THAN COTTON WITH THE ROUNDUP READY™ GENE, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

30

USE RECOMMENDATIONS:

When applied as directed under the conditions described, this product will control nonglyphosate tolerant cotton in seed production fields of cotton containing the Roundup Ready^{IM} gene. This product may be applied using ground spray equipment only. Apply 1 quart of this product plus 0.5 to 1.0% nonionic surfactant by total spray volume in 5 to 20 gallons of spray solution per acre as a broadcast spray.

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT.

Application Timing - This product can be applied to Roundup Ready™ Cotton from the cotyledonary stage through the four true leaf stage.

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Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

October 31, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup® Herbicide (EPA Reg. No. 524-445) Supplemental Label for Seed Production of

Roundup Ready™ Cotton

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of a supplemental label for Roundup herbicide, which allows the use of Roundup herbicide in the production of Roundup Ready Cotton seed. This use is necessary as a quality control measure to ensure that the Roundup Ready cotton seed produced by seed companies will be free of any non-glyphosate-tolerance cotton seeds. This label will only be distributed to a limited number of seed companies who are working closely with Monsanto on the development of this new technology.

Roundup herbicide is currently registered for a number of uses in cotton, including preplant, preemergence, selective equipment, spot treatment and preharvest applications. Tolerances are also established for glyphosate on cotton seed, forage and hay at 15 ppm. Preliminary residue data indicate that the proposed over-the-top use for seed production will not result in residues that exceed these tolerances.

Although we expect that the cotton seed produced will be within existing tolerances for glyphosate, the seed will remain under the control of the seed producer and will not be sold until the commercial use is approved by the Agency. We expect to make the submission for the commercial use in the Spring of 1995. No forage will be collected

Roundup Ready Cotton October 31, 1994 Page 2

during seed production, since the plants must be grown to maturity in order to harvest the seed. After harvest of the seed, the remaining plant material will be plowed under. In the event that a cotton seed production field is damaged (e.g., by hail) and cannot be grown to maturity, any remaining plants will be destroyed.

The production of Roundup Ready Cotton seeds represent a significant financial investment by the seed companies. The enclosed supplemental label is needed to protect that investment by ensuring that any non-tolerant volunteers are destroyed prior to seed formation. This financial investment also ensures that the Roundup Ready Cotton seeds will not enter the market before the commercial use label is approved — the seed will only be sold when a premium can be obtained for the technology.

In summary, this label is needed by producers of Roundup Ready Cotton seed as a quality control tool. The seed will not be sold until the commercial use is approved and, in the rare case that any of the seed or other plant material inadvertently enters channels of trade prematurely, glyphosate residues are expected to be within existing tolerances. Monsanto therefore requests that the Agency approve and stamp the enclosed supplemental label. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed. If you have any questions regarding this submission, please contact Dr. Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D. Manager, Regulatory Affairs

Shula a felueto

(314) 694-7248

cc: R.P. Schneider

Form Approved, OMB No. 2070-0060. Approvel expires 2-28-95

SEPA

United States

Environmental Protection Agency

Washington, DC 20460

	Registration
х	Amendment
	Other

219282

OPP Identifier Number

**	asnington, DC 2046			Other		
	Application	for Pesticio	le - Sectio	on I		
1. Company/Product Number		2. EPA Product Manager			3. Proposed Classification	Ì
524-4	45 	Robert J. Taylor			X None Restricted	.
4. Company/Product (Name) Roundup	® Herbicide	PM#	25			
5. Name and Address of Applicant finclude Zi. Monsanto Company 700 14th Street, N.W. Washington, DC 20005	(b)(i), m to:	6. Expedited Reveiw. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No				
Check if this is a new address	Produ	Product Name				
Section - II						
x Amendment - Explain below. Resubmission in response to Agency le Notification - Explain below. Explanation: Use additional page(s) if nece Supplemental label for	ssary. (For saction.)	·	Agency letter "Me Too" App Other - Explain	plication. n below.	,	
Section - III						
1. Material This Product Will Be Packaged In: Child-Resistant Packaging Yes X No Certification must be submitted Packaging Unit Packaging If "Yes" Unit Packaging	No. per wgt. container	Water Soluble P Yes X No If "Yes" Package wgt	No. per container	X	onteiner Metel Plestic Glass Paper Other (Specify)	
3. Location of Net Contents Information	4. Size(s) Retei	l Container	5	. Location of Label		\dashv
Label X Container	vario	ous		On labe	l l accompanying produc	εt
6. Manner in Which Lebel is Affixed to Produc	iph lued d	x Other	vinyl_glued			
Section - IV						
1. Contact Point (Complete items directly bei	ow for identification	of individual to b	e contacted, if	песеssary, to proc	ess this application.)	╗
Name		Title		Ti	elephone No. (Inclůdě Area Code)	_
I certify that the statements I have mad I acknowledge that any knowlingly fals both under applicable law.		il attachments th				
2. Signature Shula Q Schuett		Title Manager, Regulatory Affairs			35	
4. Typed Name Sheila A. Schuette,	Date Oct. 31, 1994			tees (fix)		

PAPERMORK REDUCTION ACT MOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting bunden for this collection of information is estimated to everage 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Rangement and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, and use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 2570-29). [If not excepted by 40 CFR 152.81 (b) (4)];

2. Confidential Statement of Formula (EPA Form 8570-4);

3. Formulator's Exemption Statement (EPA Form 8570-27);

Five copies of draft labeling;

Three copies of any data submitted;

Authorization letter where applicable;

7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in much a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5×11 inches should be mounted on 8.5×11 inch paper for submission. Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications subsitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant. Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions and applicable

- Company/Product Number Insert your Company Number, if one has been essigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Buber.
- 2. EPA Product Manager If known, fill in the name and PM number of the EPA Product Manager.

3. Proposed Classification - Specify the proposed classification of this product.

- 4. Product Name Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
- 5. Name and Address of Applicant The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing eddress of such an agent must accompany this application.

6. Expedited Review - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or exercisents to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

<u>SECTION II -</u> This section must be completed for all applications submitted to meand the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency Letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a <u>specific EPA-registered</u> product. This section is not to be used for a new application for registration.

 Subject of submission - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief
explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed:

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

Type of Packaging - Check the appropriate block if your product will be packaged in the indicated packaging types.

Indicate the size of the individuel packets and number per retail container. 2. Type of Betail Container - Indicate type of container in which product will be surketed.

3. Location of Pet Contents - Specify the net contents of all retail containers for your product. 4. Size(s) of Retail Container - Specify the net contents of all retail containers for your product.

5. Location of Use Directions -- Indicate the location of the use directions for your product. Here all the location of the use directions for your product. Here all the last is affixed to product - Indicate the method product label in attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resultaission, "me-too," reregistration, etc. "
142," Self-explanatory. Self-explanatory.

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. 6. EPA Use Opto.

Sheild A. Schuette, Ph.D.

EPA Form 69 70 1 (Ray 3-94) Praying author of the first A93

United States Environmental Protection Agency Washington, DC 20460

SEPA Certification with Respect to Citation of Data

Form Approved OMB No. 2070-0060 Approval Expires 11-30-93

6000

Applicants Name and Address	EPA File Symbol/Registration Number 524-445
Monsanto Company	
700 14th Street, N.W., Suite 1100	Product Name
Washington, DC 20005	Roundup® Herbicide
, and the second se	Date of Application
	October 31, 1994

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

- 1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of approprial of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)
- 2. I certify that, for each study cited in support of this application for registration that is an exclusive use study,
 - k I am the original submitter*; or
 - I have obtained the written permission of the original data submitter to cite that study.
- 3. I certify that, for each study cited in support of this application for registration that is not an exclusive use
 - a. | I am the original data submitter*; or
 - I have obtained the written permission of the original data submitter to cite that study*; or
 - b. | | I have notified in writing the companies that have submitted data I have cited to support this application and have offered to: (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)
 - All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)
 - | | Those companies that have submitted the studies which I have cited (Selective method*).
 - A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the

n regard to the approval of this application	n, to the extent required.	37
	Ter to Pay: I hereby offer and agree to pay regard to the approval of this application	Manager, Regulatory Affairs (Jef. 3/, Ter to Pay: I hereby offer and agree to pay compensation to other a regard to the approval of this application, to the extent required.

JAN 19 1995

Dr. Sheila A. Schutte Nonsanto Company 700 14th Street, N.W. Suite 1100 Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Revised CSP--Change in Supplier) EPA Registration No. 524-445 Your Letter Dated June 24, 1994

The scientific review and evaluation of the alternate formulation submitted above have been completed. The revised CSF appears to be acceptable and our records have been modified accordingly. However because the original CSF s dated June 8, 1993 and the original CSF accompanying this submission have been misplaced please submit original CSF s for the files as soon as possible.

Sincerely,

Robert J. Taylor Product Manager 25 Fungicide-Herbicide Branch Registration Division (7505C)

Section I Section II Section II Section III This Product Will Be Packaged In: Packaging Unit Packaging Unit Packaging Ves Ves Ves Ves Ves Ves Ves Ves		d States Environmental Prote Office of Pesticide Programs (Washington, DC 2046 Application for Pe	ction Agency H7505C) 0 X sticide:	Registration Amendment Other	OPP Identifier Number
Robert J. Taylor X None Restricted Roundup® Herbicide Roundup® Herbicide Address of Applicant (Include ZIP Code) (I	er g	Section I		 7	- 101 25 25
Roundup® Herbicide 25 Carpant (Include ZIP Code) Carpant (Include	/Product Number 524-	445	Robert J. Tayl	or 3. Pr	
(b)[i), my product is similar of identical in composition and labeling to: Check if this is a new address		•	25		· · · · · · · · · · · · · · · · · · ·
Section II Final printed labels in response to. Agency letter dated Me Too' Application. Other explain below. This Product Will Be Packaged In: Packaging Unit Packaging Vest Yes: No If Yes, No per Unit Package wgt. If No Package wgt. If No Package wgt. If Yes, No per Other (Specify) If Yes, No per Other (Specify) If Yes, No per Other (Specify) If Yes, Other (Specify) If Yes, Other (Specify) If No Label Is Affixed To Product Unit Package wgt. If No Label Is Affixed To Product Unit Package wgt. If No Container Variation If Yes Other (Specify) If Yes, Other (Vinyl glued) Section IV Paper glued Section IV Title Agricultural Regulation Title Agricultural Regulation Title Pagricultural Regulation Tother Very Title Pagricultural Regu	santo Company) 14th Street, N.W.	, Suite 1100	(b)(i), my product is simito:	ilar or identical in co	emposition and labeling
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Final printed labels in response to Agency letter dated Me Too' Application. Other - explain below. Other - explain below. Other - explain below. This Product Will Be Packaged In: Packaging Unit Packaging Ves Yes Yes Yes Yes Yes You If Yes, No. per container Container Package wgt. If Yes, No. per container Package wgt. Other - explain below. Section III This Product Will Be Packaged In: Packaging Unit Packaging Water Soluble Packaging 2. Type of Container Yes X No. per Container Yes X No. per Container Package wgt. If Yes, No. per Container Other (Specify) Other (Specify) On Labeling accompanying product Yarjotis X Other (Vinyl glued Specifol IV Specifol		Section 11			
Me Too' Application. Other - explain below. In: Use additional page(s) if necessary. (For section I and Section II.) Section III This Product Will Be Packaged In: Packaging	nent - Explain below	ž.			
Other - explain below.		letter dated	"Me Too" Application	1.	
Section III This Product Will Be Packaged In: Packaging			Other - explain below	₩.	
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Which Label is Affixed To Product Section IV Container Section IV Container Agricultural Regulation Director Metal X Plastic Glass Paper Other (Specify) Container Wheth Apper glued Section of Label Directions X On Labeling accompanying product Agricultural Regulation Telephone No. (Include Area Code Agricultural Regulation Director (202) 783-2460			Soluble Packaging	2. Type of Container	
Which Label Is Affixed To Product Which Label Is Affixed To Product Section IV Section IV Total Complete items directly below for identification of individual to be contacted, if necessary, to process this application.) Title Agricultural Regulation Director 5. Location of Label Directions X On Label Directions X On Label Directions Other (vinyl glued) Paper glued Stendled Section IV Title Agricultural Regulation Director Title On Label Directions Total On Label Directions On Label Directions To	Yes Yes X No If Yes, Unit Package	No. per If Yes	Yes No No Per	Metal X Plastic Glass Paper Other (S	
Which Label Is Affixed To Product Lithograph X Other (vinyl glued) Paper glued Stenciled Section IV Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.) Title Agricultural Regulation Telephone No. (Include Area Code Agricultural Regulation Director (202) 783-2460 39	of Net Contents Information	4. Size(s) of Retail Co	X	ocation of Label Direct	
Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.) Title Agricultural Regulation Director Director Telephone No. (Include Area Code (202) 783-2460	n Which Label Is Affixed To Pro	Paper glued Stendiled)
sell P. Schneider Director Telephone No. (Include Area Code (202) 783-2460 39	oint (Complete items directly L			essary, to process the	is application.)
Certification 6 Date Application	្រីខាត់ ម៉ា 🔾	Title Ag	ricultural Regula	Telephon tion	e No. (Include Area Code)
at the statements I have made on this form and all attachments thereto are true, accurate and complete. Received Received (Stamped)	at the statements I have made	Certification on this form and all attachme	nts thereto are true, accurate	e and complete.	Date Application Received

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

ne 24, 1994

🗀 of Pesticide Programs - H7504C cument Processing Desk 5. Environmental Protection Agency om 226A, Crystal Mall #2 21 Jefferson Davis Highway ington, Virginia 22202

ition:

Mr. Robert J. Taylor

Product Manager (25)

oject:

Roundup® Herbicide (EPA Reg. No. 524-445)

Submission of Revised Confidential Statement of Formula

ar Sir:

nsanto is submitting a revised Confidential Statement of Formula (CSF) for indup herbicide (EPA Reg. No. 524-445. The most recent CSF for this product approved by the December 9, 1993. The following changes have been made to revised CSF we are now submitting:

The certified limits for the surfactant have been modified. The previous limits were based on the \pm 5% standard range recommended in 40 CFR 158.175. However, due to the variation in the analytical method used to measure the surfactant level, we find that this range is too tight and makes process control lifficult. We are therefore requesting a slightly wider range for the surfactant ertified limits.

CSF.

This change in supplier has been noted on the revised

e approved, this revised CSF will supersede all previous versions of the CSF for and names under this registration.

vised CSF ne 24, 1994 ge 2

ou have any questions, please contact me.

Sincerely,

Sheila A. Schuette, Ph.D.

Manager, Regulatory Affairs

(314) 694-7248

R.P. Schneider

R.W. Street

D.E. Wolfersberger

DATE OUT: 8 24194

SUBJECT: PRODUCT CHEMISTRY REVIEW OF:

> A MANUFACTURING-USE [] OR AN END-USE PRODUCT []

DP Barcode مدكد (Reg. No. or File Symbol No. <u>524 - 445</u>

TO:

FROM:

(PM Team Reviewer) ω . Allon

PM Team No. 25

7/10/24 S/24/94 Bipin Gandhi (Chemist/Date)

Product Chemistry Review Section

Registration Support Branch/RD (H7505W)

THRU:

Harold Podall, Ph.D., Section Head

11/19/2-1/94.

Registration Support Branch/RD (H7505W)

SUMMARY OF INFORMATION REVIEWED AND FINDINGS

Letel 6/8/93 much meet the conditions on the cost form before it is accepted

received is a photocopy, with EPA was only column, The original CSF doded 6/8/93 is Neel a new original CSF on the original CSF form from the Monsanto.

6

CONFIDENTIAL APPENDIX A

EPA Reg. No. (or File Symbol No.)
Chemist B. Gandhi Date: 8/24/94 DP Barcode: 205216
Following information is needed on
Composition
as the form
3 % 7 each ang
The above information can or may be forwarded to the Agency from the manufactures and
CBI

The cst dated 618/93 many be approved subject to the approval of the above chamical and submission of the original CSF.

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

January 5, 1995

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup[®] Herbicide (EPA Reg. No. 524-445)

Submission of Final Printed Supplemental Label

(Preplant use with hybrid poplars).

Dear Sir.

Enclosed are five (5) copies of final printed supplemental label that allows the use of Roundup Herbicide prior to planting hybrid poplars to control undesirable woody brush and trees through directed sprays and wipers. This supplemental label was approved on November 16, 1994.

If you have any questions regarding this submission, please contact Dr. Russell Schneider at our Washington office or me at 314-694-2124.

Sincerely,

Lydia A. Suba

Registration Manager

cc: R.P. Schneider

R.D. Voth

D.M. Fee-White

D.A. Humphrey

Lydia A. Suba

Signature

Typed Name

3. Title

5. Date

Registration Manager

SUPPLEMENTAL LABELING

READ AND FOLLOW THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup herbicide

and this supplement.

BOT REVIEWD

Coccrdence with PR Notice 82-2.

Herbicide by Wonsanto

Herbicide by Wonsanto

Herbicide by Wonsanto

EPA Reg. No. 524-445

ROUNDUP® HERBICIDE FOR USE IN HYBRID POPLAR (*Populus spp.*) PRODUCTION.

Keep out of reach of children.

WARNING! AVISO!

In case of emergency involving this product, Call Collect, day or night, (314) 694-4000.

Roundup^a is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with the labeling.

This label must be in the possession of the user at the time of the herbicide application.

See "General Information" and "Mixing, Additives, and Application Instructions" sections of the Roundup herbicide label booklet for essential product performance information.

PREPLANT

This product is recommended for use prior to planting Populus spp. This includes, but is not limited to hybrid poplars and hybrid cottonwoods.

See the Roundup herbicide label booklet for specific rates for the weeds being controlled.

IN CROPUSES

DIRECTED SPRAYS

Use a 2 percent spray solution as a spray-to-wet application for the control of undesirable woody brush and trees. To control herbaceous weeds, use a 1 to 2 percent solution. Avoid contact of spray, drift, or mist with foliage, green bark or non-woody surface roots of the Populus spp.

Mix 2 to 6 quarts of a nonionic surfactant per 100 gallons of spray solution (0.5 to 1.5 percent spray volume). Use a surfactant with greater than 70 percent active ingredient.

WIPERS

This product may be used through wick or other suitable wiper applicators for control or partial control of grass and broadleaf weeds listed on the label.

For wick applicators, mix 1 gallon of this product with 2 gallons water to make a 33% solution. For wiper systems that can handle thicker solutions, such as force fed systems, a 33 to 100% Roundup solution may be used.

For best results ensure that the herbicide solution is allowed to contact the maximum amount of leaf surface. As weed densities increase, decrease equipment speed to allow sufficient herbicide flow to wet all weed surfaces contacted. Weeds not contacted will be unaffected.

AVOID HERBICIDE CONTACT WITH DESIRABLE VEGETATION. Desirable vegetation contacted by the herbicide solution may be injured or controlled. This includes foliage, fruit, or green stems.

Read "Limit of Warranty and Liability" in the label booklet for Roundup before using this product. Those terms apply to this supplemental labeling and, if those terms are not acceptable, return the product unopened at once.

@ Monsanto Company 1991

MONSANTO COMPANY AGRICULTURAL PRODUCTS. ST. LOUIS, MISSOURI 63167 46

21001S1-35

December 19, 1994

JAN 1 9 1995

Dr. Sheila A. Schuette Monsanto Company 700 14 th Street, N. W. Suite #1100 Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Clyphosate Tolerance Expression Meeting Memorandum of Understanding Your Letter Dated February 23, 1994

The scientific review and evaluation of the Memorandum of Understanding submitted above have been completed. The following are a summary of our conclusions and/or comments. Refer to enclosed copies of reviews for details.

I. Residue Chemistry

- A. We concur with your first conclusion.
 - B. We concur that conclusion 2 of the memorandum was the conclusion for the meeting. However, in the interim between this meeting and CBTS s review of the memo of understanding, the new Table II (of subdivision O), which no longer allows feeding and grazing restrictions for soybean forage has been provided to NACA and will soon be released for comment.
 - C. Since CBTS is now basing its regulatory decisions on the new Table II you are referred to this Table for guidance as how to proceed with new pesticide petitions which are affected by these changes.
 - D. With respect to the new glyphosate use on herbicide-tolerant soybeans, if residue data are available for forage and hay and if the residue data indicates that over-tolerance residues could occur from the new use, then Monsanto should petition the Agency for an increase in tolerance on the appropriate commodities.
 - E. If however, the residue has not yet been generated, the Agency could grant a conditional registration with an expiration date contingent upon the data being generated. If is likely that CBTS would not permit a feeding and grazing restriction for soybean forage and hay except on an interim basis while data are being generated.

	F.	The	need	for A	APA	residu	es	to b	æ í	nclu	ded in	the	risk	assess	ment	for	
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SYMBOL	175056	meeti	ng bu	ıt has	not	been i	evi	ewed	by	the	Agency	•				1	10
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DATE	1/18/	45]		Ţ				••••••••				· · · · · · · ·		- · · · · · ·
EPA Form	1320-1 (12	-70)					•		_			L		·	EEICI	<u> </u>	CORV

- G. We agree that Monsanto should continue to analyze RACs for residies of AMPA. You should note that the HED Metabolism Committee has reiterated their conclusion that AMPA need not be regulated regardless of levels in foods or feeds even in light of the change in residue profile due to transgenically-engineered soybeans.
- H. Please note that the above conclusions could be revised once the new metabolism, residue, and toxicology data have been received and reviewed by the Agency. Monsanto has commented that they agree with the Agency s decision to remove AMPA from the glyphosate tolerance expression and request that this decision be formalized by granting an exemption from tolerance for AMPA.

II. Toxicology

- A. Toxicology has reviewed the subject Memorandum and confirms its accuracy.
- B. Subsequently to that meeting, the HED Metabolism Committee met and agreed to drop AMPA from the tolerance expression.

Sincerely,

San San San San

Robert J. Tailor Product Manager 25 Fungicide-Berbicide Branch Registration Division (7505C)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

MAY .3 1994

MEMORANDUM

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

Subject:

Comments on the Memo of Understanding from Monsanto to

EPA from the 2/10/94 meeting on genetically-engineered

soybeans. No MRID, CBTS #13306, DP D200039.

From:

Mary H. Peters, Chemist

Tolerance Petition Section I

Chemistry Branch I-Tolerance Support

Health Effects Division (7509C)

Through:

Robert Quick, Section Head

Tolerance Petition Section I

Chemistry Branch I-Tolerance Support

Health Effects Division (7509C)

To:

Vickie Walters/Robert Taylor, PM Team #25

Fungicide/Herbicide Branch Registration Division (7505C)

Monsanto has submitted a memo of understanding concerning the meeting held on 2/10/94 in which the glyphosate tolerance expression for genetically-modified, herbicide-tolerant soybeans was discussed. RD has requested CBTS' comments on this memo.

In the interest of harmonization with Codex, the Agency has proposed to modify the glyphosate tolerance expression from glyphosate (N-(phosphonomethyl)glycine) and its metabolite AMPA (aminomethylphosphonic acid) to glyphosate only. At the 2/10/94 meeting, Monsanto presented residue and plant metabolism data which indicated that the ratio of glyphosate to AMPA will change when glyphosate has been applied to genetically-engineered crops. Monsanto posed the question as to whether the Agency would still recommend for the change in the tolerance expression in light of the new metabolic profile.

Monsanto has listed four specific issues discussed, and their conclusions regarding the Agency's response to these issues.

1. The Agency confirmed that if AMPA were removed from the glyphosate tolerance expression, then AMPA residues would not be included in the tolerance value. For example, if there is an existing glyphosate tolerance for a crop at 0.1 ppm and a new use in that crop were to result in glyphosate residue levels below 0.1 ppm and AMPA residues above 0.1 ppm, then a new tolerance



would not be required; such a commodity should not contain illegal residues and therefore could not be seized by FDA.

CBTS concurs with this conclusion.

2. The Agency noted that there will be a notice for public comment later this year on the feeding and grazing restrictions on soybean forage that Monsanto plans to request in conjunction with the over-the-top use of glyphosate, but that Monsanto could request the restriction in the submission. It was determined that placing the restriction on the seed bag rather than the herbicide label would likely not be enforceable.

CBTS concurs that this was a conclusion of the meeting. However, in the interim between this meeting and CBTS' review of the memo of understanding, the new Table II (of Subdivision O) which no longer allows feeding and grazing restrictions for soybean forage has been provided to NACA and will soon be released for public comment. Since CBTS is now basing its regulatory decisions on the new Table II, Monsanto is directed to the copy of this Table with the accompanying cover memo with guidance as to how to proceed with new pesticide petitions . which are affected by these changes. With respect to the new glyphosate use on herbicide-tolerant soybeans, if residue data is available for forage and hay and if the residue data indicates that over-tolerance residues could occur from the new use, then Monsanto should petition the Agency for an increase in tolerance on the appropriate commodities. If, however, the residue data has not yet been generated, the Agency could grant a conditional registration with an expiration date contingent upon the data being generated. It is likely that CBTS would not permit a feeding and grazing restriction for soybean forage and hay except on an interim basis while data are being generated.

3. Monsanto will continue to analyze residue samples for both glyphosate and AMPA residues since the same analytical method is used for both. The data on AMPA would then be available if it were needed for risk assessment.

The need for AMPA residues to be included in the risk assessment for glyphosate is under the purview of the Toxicology Branches and would be dependent on the new toxicological data which was presented at this meeting but has not yet been submitted to the Agency. CBTS agrees that Monsanto should continue to analyze RACs for residues of AMPA. Monsanto should note that the HED Metabolism Committee has reiterated their conclusion that AMPA need not be regulated regardless of levels observed in foods or feeds even in light of the change in residue profile due to transgenically-engineered soybeans (HED Metabolism Committee memo, R. Perfetti, 3/17/94).

4. Dr. Schneider noted that glyphosate-tolerant soybeans will be grown at a demonstration plot near Washington, D.C. this summer and invited anyone who was interested in this new technology to visit the site; Monsanto will arrange the tours.

CBTS notes that the above conclusions could be revised once the new metabolism, residue, and toxicology data have been received and reviewed by the Agency. Monsanto has commented that they agree with the Agency's decision to remove AMPA from the glyphosate tolerance expression and request that this decision be formalized by granting an exemption from tolerance for AMPA.

ce:Larry Zeph (TS-788)
ce:RF, eire., M. Peters, Glyphosate SP
RDI:SecHead:RSQuick:5/2/94:BrSrScientist:RALoranger:5/2/94:BrChief:ESaito:5/3/94.
7509C:MHP:mhp:CM#2:Rm804C:(703)305-6380:5/3/94.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C. 20460

SEP | 2 | 1994

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

Glyphosate. Comments on Memorandum of SUBJECT:

Understanding for Tolerance Expression

PC Code 103601 Tox. Chem. No. 661A Project No. D200038 Submission No. S459620

TO:

Robert Taylor, PM Team # 25

Registration Division (7505C)

FROM:

William Dykstra, Ph.D., Toxicologist

THRU:

Health Effects Division (7509C)

Section I, Toxicology Branch I
Health Effects Division (7509C)

Roger L. Gardner, Section Head Famila M. Apply 8/3/194
Section I, Toxicology Branch I
Health Effects Division (7509C)

Background and Request:

On February 10, 1994, Monsanto met with the Agency to discuss the Agency's proposal to remove the metabolite aminomethylphosphonic acid (AMPA) from the glyphosate tolerance expression. At the meeting, Monsanto provided information concerning the AMPA residues on some crops that are currently being developed. During the discussion, the Agency confirmed that the new information would not change their recommendation to remove AMPA from the tolerance expression, as long as there were no unexpected results in the final reports.

The Toxicology Branch (TB-I) has been asked to comment on the Registrant's summary of the February 10th meeting and the conclusions from that meeting.

Toxicology Branch Response:

TB-I has examined the summary of the February 10th meeting that was submitted by the Registrant and confirms its accuracy. In addition, TB-I notes that subsequent to that meeting, the HED Metabolism Committee met and agreed to drop AMPA from the glyphosate tolerance expression.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C. 20460

SEP 2 1994

MAR | 7 | 1994

<u>MEMORANDUM</u>

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

SUBJECT:

The Metabolism Committee Meetings For Glyphosate Held on

March 17, 1994.

FROM:

R. Perfetti, Ph.D., Chemist

Reregistration Section I

Chemistry Branch II - Reregistration Sur

Health Effects Division (H7509C)

THRU:

Edward Zager, Chief

Chemistry Branch II - Reregistration Support

Health Effects Division (H7509C)

TO:

The Metabolism Committee

Health Effects Division (H7509C)

A. Individuals in Attendance:

1. <u>Metabolism Committee</u>: (Signatures indicate concurrence unless otherwise stated)

Richard Loranger

Michael Metzger

Alberto Protzel

Reto Engler

Richard Schmitt

Karl Baetcke

2. <u>Scientists</u>: (Non-committee members responsible for data presentation; signatures indicate concurrence with

conclusion.)

R. Perfetti

W. Dykstra

<u>---</u>-

A P

3. <u>Metabolism Committee Members in Absentia</u>: (Committee members who were unable to attend the discussion; signatures indicate concurrence with the overall conclusions of the Committee)

George Ghali		
Charles Frick		

B. Material Reviewed:

The Committee discussed whether uses that result in significantly higher residues of aminomethylphosphonic acid (AMPA) in plants and livestock commodities in the future would require that AMPA be reintroduced into the tolerance expression of glyphosate. The Committee decided that, based on Toxicology considerations, AMPA need not be regulated regardless of levels observed in foods or feeds.

cc: Glyphosate Reregistration File, Glyphosate Subject File, D. Edwards/TSCB, Metabolism Committee File, Circ., RF, L. Rossi/SRRD and RBP.

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

February 23, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor

Product Manager (25)

Subject: Glyphosate Tolerance Expression Meeting

Memorandum of Understanding

Dear Sir:

On February 10, Monsanto met with the EPA to discuss the Agency's proposal to remove the metabolite aminomethylphosphonic acid (AMPA) from the glyphosate tolerance expression. Attending for EPA were Wesley Allen, William Dykstra, Rick Loranger, Michael Metzger, Randy Perfetti, Mary Peters, and Robert Quick. Attending for Monsanto were William Goure, Charles Hastings, Russ Schneider and me.

Monsanto requested the meeting to ensure that the Agency was aware that we are developing crops that are tolerant to glyphosate and that metabolism and residue studies on these crops demonstrate that AMPA will be a greater component of the total residue. In fact, in some crops, AMPA will be the major residue. Monsanto presented a summary of the metabolism and residue data we have developed for glyphosate-tolerant soybeans, which is the first crop we plan to commercialize in the US. Monsanto also presented an overview of the toxicological studies that have been conducted on AMPA. Copies of the overheads used in the presentation are attached for your files. Monsanto will submit the full studies in the next few months to support our request to label Roundup® herbicide for use over the top of glyphosate-tolerant soybeans.

Successfully, metabolism Committee AMPA from the glyphosale and dropped amples are dropped amples and dropped amples are dropped amples and dropped amples

TELEPHONE: (202) 783-2460 FACSIMILE: (202) 783-24

During the presentation, there were several questions for clarification and general interest about this new technology. During the discussion, these specific points were addressed:

- The Agency confirmed that if AMPA were removed from the glyphosate tolerance expression, then AMPA residues would not be included in the tolerance value. For example, if there is an existing glyphosate tolerance for a crop at 0.1 ppm and a new use in that crop were to result in glyphosate residue levels below 0.1 pmm and AMPA residues above 0.1 ppm, then a new tolerance would not be required. The Agency confirmed that such a commodity would not contain illegal residues and therefore could not be seized by FDA.
- Monsanto plans to request a feeding / grazing restriction on soybean forage. The Agency noted that there would be a notice for public comment on these types of restrictions later this year, but that Monsanto could request the restriction in our submission. It was determined that placing the restriction on the seed bag rather than the herbicide label would likely not be enforceable.
- Monsanto will continue to analyze residue samples for both glyphosate and AMPA residues since the same analytical method is used for both. The data on AMPA would then be available if it were needed for risk assessment.
- Dr. Schneider noted that glyphosate-tolerant soybeans will grown be at a
 demonstration plot near Washington, D.C. this summer and invited anyone
 who was interested in this new technology to visit the site; Monsanto will
 arrange the tours.

In summary, the Agency concluded that the new information we presented on glyphosate-tolerant crops would not change their recommendation to remove AMPA from the tolerance expression, as long as there were no unexpected results in the final reports. Monsanto agrees with the Agency's decision to remove AMPA from the glyphosate tolerance expression and requests that this decision be formalized by granting an exemption from tolerance for AMPA.

If you have any questions, please contact Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D.

Manager Regulatory Affairs

Shila a. Schuette

(314) 694-/248

cc: R.P. Schneider

Monsanto

Monsanto Company Suite 1100 . 700 14th Street, N.W. Washington, D.C. 20005

January 5, 1995

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup® Herbicide (EPA Reg. No. 524-445)

Submit Final Printed Supplemental Label - Shielded Applicator Use in Grasses Grown for Seed in Idaho, Oregon & Washington

only.

Dear Sir:

Attached are five (5) copies of a final printed supplemental label to allow the use of shielded applicator with Roundup herbicide in grasses grown for seed in the States of Idaho, Oregon and Washington. This supplemental label was approved on November 16, 1994.

If you have any questions regarding this submission, please contact Dr. Russell Schneider at our Washington office or me at 314-694-2124.

Sincerely,

Lydia A. Suba

Registration Manager

cc: R.P. Schneider

R.D. Voth

D.M. Fee-White

Please read instructions on reverse before completing form.	Form Approved. OMB No. 2070-0060. Approval expires 11-30-93					
(A) SEPA United States Environmental Pro-Office of Pesticide Programs Washington, DC 20 Application for F	Registration OPP Identifier Number (H7505C) Amendment					
Section	<u> </u>					
Company/Product Number	EPA Product Manager 3. Proposed Classification					
524-445	Robert J. Taylor					
4. Company/Product (Name)	PM# 25 Restricted					
Roundup® Herbicide						
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005	Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No					
Check if this is a new address	D-Just Nove					
Section	Product Name					
Amendment - Explain below Resubmission in response to Agency letter dated Notification - Explain below.	x Final printed labels in response to Agency letter dated 11/16/94 "Me Too" Application. Other - explain below.					
Explanation: Use additional page(s) if necessary (For section I and Submission of final printed label for for seed in Idaho, Oregon and Washingt	shielded applicator use in grasses grown					
·						
0	The Section of the Se					
Section III 1. Material This Product Will Be Packaged In:						
	er Soluble Packaging 2. Type of Container.					
Yes* X No If Yes, No per Unit Package wgt. Container Package wgt.	Yes Metal Plastic gray 1200 Glass Paper					
3. Location of Net Contents Information 4. Size(s) of Retail Label Container						
6. Manner In Which Label Is Affixed To Product Lithograph Paper glued Stendied	Other (
Section						
1. Contact Point (Complete items directly below for identification of inc	dividual to be contacted, if necessary, to process this application.) 💥 📉 📆					

Telephone No. (Include Area Code) Name Tide Agricultural Regulation Dr. Russell P. Schneider

Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete.

6. Date Application of Received Advances

I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or -both under applicable law. 2. Signature

3. Tide Registration Manager

 Typed Name Lydia A. Suba 5. Date

PAPERMORK REDUCTION ACT MOTICE and INSTRUCTIONS

PAPERNORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is extimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:
1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];

2. Confidential Statement of Formula (EPA Form 8570-4);

Formulator's Exemption Statement (EPA Form 8570-27);

4. Five copies of draft labeling;

5. Three copies of any data submitted;

Authorization letter where applicable;

7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be wounted on 8.5 x 11 inch paper for submission. Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Stock A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in commection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant. Block A - Check the appropriate action for which you are submitting this form.

<u>SECTION I</u> - This section must be completed, as applicable, for all registration actions.

- 1. Company/Product Number Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product theber.
- 2. EPA Product Namager If known, fill in the name and PM number of the EPA Product Manager.

3. Proposed Classification - Specify the proposed classification of this product.

- 4. Product Name Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand, name or company line designations.
- 5. Name and Address of Applicant The name of the firm or person and address shown in your application is the person or firm that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
- 6. Expedited Review FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or exemples to to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product your believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product: (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling; for reregistration and for any other action that pertains to a specific EPA registered

product. This section is not to be used for a new application for registration.

1. Subject of submission - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by...": "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed. Market and the second

SECTION III (Packaging and Container Information) This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. Type of Passaging - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.

2. Type of Petail Container - Indicate type of container in which product will be marketed.
3. Location. of Lat Contents - Specify the net contents of all retail containers for your product.

4. Size(a) of Retail Container - Specify the net contents of all retail containers for your product.
5. Location of Use Directions Indicate the location of the use directions for your product.

6. Numer in which label is affixed to product a indicate the method product label is attached to retail container.

SECTION IV (Contact-Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resulmission, "me-ton," reregistration, etc.

1-3. Self-explanatory.

6. EPA Use Only.

MrG .31

EPA Form 8570-1 (Rev. 12-90)

SUPPLEMENTAL LABELING

READ AND FOLLOW THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING

"Label" as used in this supplemental labeling refers to the label booklet for Roundup herbicide

and this supplement.

EPA Reg. No. 524-445

SHIELDED APPLICATOR USE IN GRASSES GROWN FOR SEED IN IDAHO, OREGON AND WASHINGTON ONLY.

Keep out of reach of children. WARNING! AVISO!

In case of emergency involving this product, Call Collect, day or night, (314) 694-4000.

Roundup® is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with the labeling.

This label must be in the possession of the user at the time of the herbicide application.

When applied using shielded applicator equipment designed to prevent direct contact, movement of spray droplets, or mist onto desirable grasses grown for seed production, this product may be used to control labeled weeds. Use of low spray pressure through low pressure nozzles will minimize the potential of spray drift.

Apply 1 to 3 quarts of this product per acre as a broadcast spray in 10 to 20 gallons of total spray volume per acre.

Uniform planting in straight rows aid in shielded sprayer applications. Best results are obtained when the grass seed crop is small enough to easily pass by or through the protective shields.

GROWER ASSUMES ALL RESPONSIBILITY FOR CROP LOSSES FROM MISAPPLICATION.

Read "LIMIT OF WARRANTY AND LIABILITY" in the label booklet for Roundup before using this product. Those terms apply to this supplemental labeling and, if those terms are not acceptable, return the product unopened at once.

© Monsanto Company 1994

MONSANTO COMPANY AGRICULTURAL PRODUCTS ST. LOUIS, MISSOURI 63167

21001S1-34 December 19, 1994

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

November 23, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup Herbicide (EPA Reg. No. 524-445)

Submission of Final Printed Labels:

Supplemental Label for Seed Production of Soybeans with the

Roundup Ready™ Gene

Dear Sir:

Monsanto is submitting final printed labels of a Roundup® herbicide supplemental label for your files. This supplemental label, which allows the use of Roundup herbicide in the production of soybean seeds with the Roundup Ready gene, was approved by the Agency on August 11, 1994.

Enclosed are five (5) copies of the label (version 21001S1-25).

If you have any questions regarding this submission, please contact Dr. Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D.

Manager, Regulatory Affairs

Shula Q. februlo

(314) 694-7248

cc: R.P. Schneider

(A) SEPA United States Environmental F Office of Pesticide Program Washington, DC a Application for	ms (H7505C) Amendment
Section	
Company/Product Number	EPA Product Manager
524-445	Robert J. Taylor
4. Company/Product (Name) Roundup® Herbicide	PM# 25 X None Restricted
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No
Check if this is a new address :	Product Name
Section	111
Amendment - Explain below	Final printed labels in response to Agency letter dated 8/11/94
Resubmission in response to Agency letter dated	"Me Too" Application.
Notification - Explain below.	Other - explain below
with the Roundup Ready™ gene.	 (2) する Substitute (対象を認識された。 対象
Section	III ja ja ja ja ja ja kana kana in ja ja kana kana in in in in in tara da kana kana ang ang kana kataba jaga i
Material This Product Will Be Packaged In: Child-Resistant Packaging Unit Packaging W	ater Soluble Packaging 2. Type of Container 1 (1997) in the soluble
Yes Yes No No Per Unit Package wgt. Container Pa	Yes 76 Labity 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
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Label X Container Various 6. Manner In Which Label Is Affixed To Product Lithograph Paper glue	The second of th
StendledSection	the state of the s
t. Contact Point (Complete items directly below for identification of	individual to be contacted, if necessary (to process this application:) 140 (14.35)
bi. Russell r. Schneider	Agricultural Regulation Telephone No (Include Area Code Director) (202) to 783-2460 to 161
Certification	6 Date Application
centry that the statements I have made on this form and all affact	hments thereto are true, accurate and complete to the Received and the manual may be punishable by fine or imprisonment or the Received and Stamped) and the Received and the Re
I certify that the statements I have made on this form and all altact I acknowledge that any knowingly false or misleading statement both under applicable law.	hments thereto are true, accurate and complete terms of the complete terms of terms of the complete terms of the complete terms of the complete terms of the complete terms of t

5. Date

EPA Form 8570-1 (Rev. 12-90) Previous editions are obsolets.

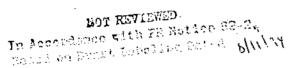
Sheila A. Schuette, Ph.D.

White - EPA File Copy (original) - Yellow - Applicant copy

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup, container labels and this supplement.





EPA Reg. No. 524-445

USE ONLY FOR SEED PRODUCTION OF SOYBEANS WITH THE ROUNDUP READY™ GENE

Keep out of reach of children. WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

Roundup^a is a registered trademark of Monsanto Company.

Roundup Ready™ is a trademark of Monsanto Company

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup for essential product performance information.

NOTE: THIS PRODUCT MAY BE USED FOR CONTROL OF NON-GLYPHOSATE TOLERANT SOY-BEANS IN PRODUCTION FIELDS

OF SOYBEANS CONTAINING THE ROUNDUP READY™ GENE. SEVERE INJURY OR DEATH WILL RESULT IF SOYBEAN VARIETIES WHICH DO NOT CONTAIN THE ROUNDUP READY GENE ARE SPRAYED WITH THIS PRODUCT. AVOID CONTACT OF THE SPRAY WITH FOLIAGE; GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS AND TREES, OTHER THAN SOYBEANS WITH THE ROUNDUP READY GENE, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

USE RECOMMENDATIONS

When applied as directed under the conditions described, this product will control non-glyphosate tolerant soybeans in seed production fields

of soybeans containing the Roundup Ready gene. This product may be applied using ground spray equipment only. Apply 1 quart of this product plus 0.5 to 1.0% nonionic surfactant by total spray volume in 5 to 20 gallons of spray solution per acre as a broadcast spray.

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT.

Application Tigning — This product can be applied to Roundup Ready Soybeans from the cracking stage through the flowering stage.

@ Monsanto Compail(1534

2100101-25

MONSANTO COMPANY.... AGRICULTURAL PROPRICTS ST. LOUIS, MISSOURI,63167

Monsanto

Monsanto Company -Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

December 19, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup[®] Herbicide (EPA Reg. No. 524-445)

Submission of Final Printed Labels / Red Rice Control in Texas

Dear Sir.

Monsanto is submitting final printed labels of a supplemental label for Roundup herbicide for your files. This label, which allows the use of up to 1.5 quarts/acre of Roundup for the control of red rice in Texas, was approved by the Agency on November 16, 1994. This label will be distributed in Texas only.

Enclosed are five (5) copies of the label (version 21001S1-36).

If you have any questions regarding this submission, please contact Dr. Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D.

Manager, Regulatory Affairs

Shula Q. Schuette

(314) 694-7248

cc: R.P. Schneider

(A) SEPA	United States Environmenta Office of Pesticide Progr Washington, DC Application fo	rams (H 20460	7505C)	ency		Registrat Amendm	ion	OPP Identifier N	Vumber
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Name Dr. Russell P. Schne		Di	rect	or, the			(202)	783-2460	বলালি ! ড কে: .:

Sheila A. Schuette, Ph.D.

2. Signature

5. Date

Manager, Regulatory Affairs

Dec. 19, 1994

PAPERNORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, and use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];

2. Confidential Statement of Formula (EPA Form 8570-4);

Formulator's Exemption Statement (EPA form 8570-27);

4. Five copies of draft labeling;

5. Three copies of any data submitted;

Authorization letter where applicable;

7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a muckup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5×11 inch file. Mockup labels significantly smaller than 8.5×11 inches should be mounted on 8.5×11 inch paper for submission. Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant. Block A - Check the appropriate action for which you are submitting this form.

<u>SECTION I</u> - This section must be completed, as applicable, for all registration actions.

- Company/Product Number Insert your Company Number, if one has been assigned by EPA. This number may have been assigned
 to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Bumber.
- EPA Product Manager If known, fill in the name and PM number of the EPA Product Manager.

3. Proposed Classification - Specify the proposed classification of this product.

- 4. Product Name Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand mame or company line designations.
- 5. Mame and Address of Applicant The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing
- address of such an agent must accompany this application.

 5. Expedited Review FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to general the registration only of a currently: registered product (Amendment), for a resubmission in response to an Agency Letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product.; This section is not to be used for a new application for registration.

1. Subject of submission - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief. explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted independential with new registration or applicable anembers.

1. Type of Packaging - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual peckets and number per retail container.

Type of Retail Container - indicate type of container in which product will be marketed.
 Location of des Contents - Specify the net contents of all retail containers for your product.

4. Size(s) of Retail Cortainer - Specify the net contents of all retail containers for your product.
5. Location of Use Directions - Indicate the location of the use directions for your product.

6. Manner iffiliation label to difficult to product indicate the method product tabel is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "me-too," reregistration, etc. 1-5. Self-explanatory.

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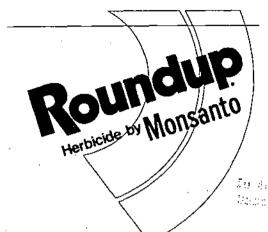
EPA Form 6570-1 (Rev. 12-80)

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup

and this supplement.



Audication Description Descrip

EPA Reg. No. 524-445

RED RICE CONTROL IN TEXAS ONLY.

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

Roundup[®] is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

AVOID CONTACT WITH FOLI-AGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup herbicide for essential product performance information.

RECOMMENDATIONS

This product may be used to control red rice, prior to planting rice. Apply 1 1/2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Use surfactants with a minimum of 70 percent active ingredient. Add 17 pounds of ammonium sulfate per 100 gallons of water.

Flush fields prior to applications to obtain uniform germination and stand of red rice. Make applications when the majority of the red rice plants are in the 2-leaf stage and no more than 4 inches tall. Red rice plants with less than 2 true leaves may only be partially controlled. Do not treat rice fields or levees when the fields contain flood water.

For aerial applications, drift control additives may be used.

Avoid spraying during low humidity conditions, as reduced control may result.

Do not re-flood treated fields for 8 days following application.

Read the "Limit of Warranty and Liability" in the lanel booklet for Roundup herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

© morisanto Company 1994

MONSANTO COMPANY AGRICULTURAL PRODUCTS ST. LOUIS, MISSOURI 63167

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NOV 1 6 1994

Ms. Lydia A Suba Monsanto Company 700 14th Street, N.W. Suite #1100 Washington, D.C. 20005

Dear Ms. Suba:

Subject: Roundup Herbicide (Sheilded Applicator For Grasses Grown for Seed)
EPA Registration No. 524-445
Your Letter Dated October 3, 1994

The labeling referred to above submitted in connection with registration under the Federal Insecticide, Pungicide, and Rodenticide Act, as amended is acceptable. Please submit five (5) copies of your final printed labeling before you release the product for shipment. A stamped copy of Tabeling is enclosed for your records.

Sincerely,

Robert J. Taylor Product Manager 25 Pungicide-Herbicide Branch Registration Division (7505C)

SUPPLEMENTAL LABELING

READ AND FOLLOW THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup herbicide and this supplement.

ROUNDUP®

HERBICIDE BY MONSANTO

EPA Reg. No. 524-445

SHIELDED APPLICATOR USE IN GRASSES GROWN FOR SEED IN IDAHO, OREGON AND WASHINGTON ONLY.

Keep out of reach of children.

WARNING!

In case of emergency involving this product, Call Collect, day or night, 314-694-4000.

Roundup® is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with the labeling.

This label must be in the possession of the user at the time of the herbicide application.

When applied using shielded applicator equipment designed to prevent direct contact, movement of spray droplets, or mist onto desirable grasses grown for seed production, this product may be used to control labeled weeds. Use of low spray pressure through low pressure nozzles will minimize the potential of spray drift.

Apply 1 to 3 quarts of this product per acre as a broadcast spray in 10 to 20 gallons of total spray volume per acre.

Uniform planting in straight rows aid in shielded sprayer applications. Best results are obtained when the grass seed crop is small enough to easily pass by or through the protective shields.

ACCEPTED

NOV 1 6 1994

Under the Federal Insecticide.
Fungicide, and Rodenticide Act.
as amended, for the pesticide
registered under
EPA Reg. No. 524 445

GROWER ASSUMES ALL RESPONSIBILITY FOR CROP LOSSES FROM MISAPPLICATION.

Read "LIMIT OF WARRANTY AND LIABILITY" in the label booklet for Roundup before using this product. Those terms apply to this supplemental labeling and, if those terms are not acceptable, return the product unopened at once.

©MONSANTO COMPANY 1994

MONSANTO COMPANY AGRICULTURAL PRODÚCTS ST. LOUIS, MISSOURI 63167

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5. Three copies of any data submitted; 6. Authorization letter where applicable;

7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft Labels with all applications for new registration. Such draft Labels may be in the form of typed Label text on 8.5 x 11 inch paper or a mockup of the proposed Label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission. Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

 $\overline{\text{SECTION}}$ I - This section must be completed, as applicable, for all registration actions.

- Company/Product Number Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
- 2. EPA Product Manager If known, fill in the name and PM number of the EPA Product Manager.

3. Proposed Classification - Specify the proposed classification of this product,

- 4. Product Name Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
- 5. Name and Address of Applicant The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
- 6. Expedited Review FIFRA section 3 (c) 3 (8) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

<u>SECTION II</u> - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a <u>specific EPA-registered</u> product. This section is <u>not to be</u> used for a new application for registration.

1. Subject of submission - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

<u>SECTION III (Packaging and Container Information)</u> - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

Type of Packaging - Check the appropriate block if your product will be packaged in the indicated packaging types.
Indicate the size of the individual packets and number per retail container.

Type of Retail Container - Indicate type of container in which product will be marketed.

3. Location of Net Conterts - Specify the net contents of all retail containers for your product.
4. Size(s) of Retail Container - Specify the net contents of all retail containers for your product.

5. Location of the Directions - Indicate the location of the use directions for your product.

6. Manner in which label is effixed to product - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., now products registration, resubmission, "me-too," reregistration, etc.

1-5. Self-explanatory.

6. EPA Use Only.

Monsanto

Wh

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

October 3, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup[®] Herbicide (EPA Reg. No. 524-445)

Submit Supplemental Label - Shielded Applicator Use in Grasses

Grown for Seed in Idaho, Oregon & Washington only.

Dear Sir.

Attached are five (5) copies of a supplemental label for your review and approval to allow the use of shielded applicator with Roundup herbicide in grasses grown for seed in the States of Idaho, Oregon and Washington.

Please stamp one copy of this label for our use in state registrations. If you have any questions regarding this submission, please contact Dr. Russell Schneider at our Washington office or me at 314-694-2124.

Sincerely,

Ľydia A. Suba

Registration Manager

cc: R.P. Schneider

R.D. Voth

D.M. Fee-White D.A. Humphrey

NOV 1 6 1994

Ms. Lydia A Suba Monsanto Company 700 14th Street, N.W. Suite #1100 Washington, D.C. 20005

Dear Ms. Suba:

Subject: Roundup Super Concentrate Grass & Weed Killer (Add Use Directions for Ortho Spray N Dial)

EPA Registration No. 524-445
Your Letter Dated October 18, 1994

The labeling referred to above submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. Please submit five (5) copies of your final printed labeling before you release the product for shipment. A stamped copy of labeling is enclosed for your records.

Sincerely,

Robert J. Taylor

Product Manager 25

Fungicide-Herbicide Branch

Registration Division (7505C)

ROUNDUP Super Concentrate Grass & Weed Killer, EPA Reg. No. 524-445

For Roundup Super Concentrate Weed & Grass Killer

COPY A

Use pump-up-type, hand-trigger type or ORTHO DIAL 'n SPRAY hose-end sprayer to apply this product. Triple-rinse sprayer and flush all sprayer components with water after use to remove residues of this product. After very thorough cleaning, equipment may be used to apply other products. Apply rinse waters to undesirable plants not previously sprayed.

COPY B

Do not apply this product through any type of irrigation system or sprinkler-type devices. These applications may result in poor and/or erratic results.

COPY C

[Directions for ORTHO DIAL 'n SPRAY]

For large jobs such as lawn renovation, brush control or large garden/ornamental planting bed preparation this product may be used in an ORTHO DIAL 'n SPRAY hose-end sprayer. Pour undiluted product into sprayer container. DO NOT ADD WATER. Set dial to 1 1/2 fl oz for annuals or 2 1/2 fl oz for lawn renovation and brush control.

COPY D

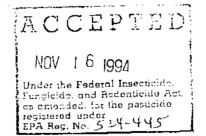
This product can be used to refill Roundup Ready-To-Use Weed & Grass Killer carefully following label directions.

COPY E

USE TO REFILL ROUNDUP READY-TO-USE

COPY F





SUPER CONCENTRATE by Monsanto

Weed & Grass Killer [graphics of weeds dying in 1-14 days]

- MIX WITH WATER TO MAKE UP TO XX GALLONS OF SPRAY SOLUTION (varies with container size)
- COVERS UP TO XX SQ. FT. (varies with container size)
- DOES NOT HAVE SOIL ACTIVITY
- KILLS UNWANTED WEEDS AND GRASSES, ROOTS AND ALL
- SYSTEMIC ACTION -- KILLS ROOTS AND ALL.
- KILLS WEEDS ROOTS AND ALL
- SPRAY WEEDS IN FLOWER BEDS AND AROUND FENCES, TREES, DRIVEWAYS, WALKWAYS AND SHRUBS
- USE TO PREPARE GARDEN SITES AND TO RENOVATE LAWNS
- ECONOMICAL- MIX 3 TO 5 TABLESPOONS (1½ 2½ OZ) PER GALLON
 - SATISFACTION GUARANTEED OR YOUR MONEY BACK

Keep out of reach of children.

WARNING Read precautions and directions in and on back label.

ACTIVE INGREDIENT:

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Net 32 fl. oz. (1 qt.) (print plate number)

BACK PANEL EXTERIOR PAGE

READ THE ENTIRE LABEL BEFORE USING THIS PRODUCT. USE ONLY ACCORDING TO THE DIRECTIONS IN THE LABEL AND OBSERVE ALL PRECAUTIONS.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

WARNING

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY.

HARMFUL IF SWALLOWED OR INHALED.

Do not get in eyes or on clothing.

Wear safety glasses.

Avoid breathing vapor or spray mist.

Wash thoroughly with soap and water after handling.

Remove contaminated clothing and wash before reuse.

FIRST AID: IF IN EYES, immediately hold eyelids open and flush with plenty of water for at least 15 minutes. Get medical attention.

IF INHALED, remove individual to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

IF SWALLOWED, this product will cause gastrointestinal tract irritation. Immediately dilute by swallowing water or milk. Get medical attention.

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000. [picture of telephone receiver]

NOTICE: BUYER ASSUMES ALL RESPONSIBILITY FOR SAFETY AND USE NOT IN ACCORDANCE WITH DIRECTIONS. IF THESE TERMS ARE NOT ACCEPTABLE, RETURN AT ONCE UNOPENED. (moved from inside label)

Environmental Hazards

Do not apply directly to water. , or to areas where surface water is present, or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment washwaters.

BACK PANEL EXTERIOR PAGE CONT'D.

PRECAUTION: SEE "DIRECTIONS FOR USE" FOR IMPORTANT CONTAINER PRECAUTIONS, and inside label for storage and disposal information.

This product is protected by U.S. Patent No. 4,405,531. Other patents pending. No license granted under any non-U.S. patent(s). (bar code)

REFORMULATION OR REPACKAGING FOR SALE IS PROHIBITED. (moved from inside label)

®Trademark of Monsanto Company
@MONSANTO COMPANY (year of copyright)
MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167 U.S.A.

EPA Reg. No. 524-445 EPA Est. 524-LA-1

(print plate number)

(INSIDE LABEL FIRST PAGE)

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. READ THE ENTIRE LABEL BEFORE USING THIS PRODUCT. USE ONLY ACCORDING TO THE FOLLOWING DIRECTIONS AND OBSERVE ALL PRECAUTIONS.

Roundup® Super Concentrate Weed and Grass Killer, when absorbed by contacted foliage, is carried throughout the stems and roots to give complete kill of tough annual and perennial weeds and Roundup is broken down in the soil by microbes. in contact with soil, it has no more weed killing activity and will not move in or on the soil to affect nearby plants.

[proof of purchase]

HOW TO USE

IMPORTANT: This product is an all-purpose weed, grass, and brush killer which can injure or kill all plants contacted (virtually anything that is green and growing). APPLY ONLY WHEN AIR IS CALM. AVOID SPRAY CONTACT ON DESIRABLE PLANTS. IF NECESSARY, SHIELD DESIRABLE PLANTS TO PREVENT CONTACT WITH SPRAY. If spray or drift accidentally contacts desirable plants, wash off immediately with water. Rainfall within 6 hours could affect performance. Avoid mowing, cutting or otherwise disturbing sprayed plants for at least 7 days. People and pets should stay off sprayed area until thoroughly dry to ensure that product is not tracked into areas where desirable plants are growing.

SPRAY EQUIPMENT

Use pump up type or hand-trigger type sprayers to apply this product. Triple-rinse sprayer and flush all sprayer components PYA-7 with water after use to remove residues of this product. After very thorough cleaning, equipment may be used to apply other products. Apply rinse waters to undesirable plants not breviously sprayed.

WARNING: Mix, spray, apply and store solutions of this product only in stainless steel, aluminum, fiberglass, plastic or plastic-lined steel sprayers. DO NOT MIX, APPLY, OR STORE THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) SPRAYERS, because the product and such containers can react to produce a highly combustible mixture of hydrogen gas. This buildup of hydrogen gas in a closed container can create enough pressure to cause the container to rupture, or can flash or explode, causing serious personal injury, if ignited by open flame, spark, welders torch, lit cigarette or any other ignition source.

Po not apply this product through any type of irrigation system, por use in hose-end sprayers or sprinkler-type devices. 7 applications may result in poor and/or erratic results.

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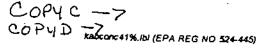


ROUNDUP SUPER CONCENTRATE USE DIRECTIONS TABLE

Follow mixing rate recommendations in this Use Directions Table. Ensure uniform and complete spray coverage. Sprayed plants usually show effects within 7 days, with complete kill in 2 to 4 weeks. For best results, apply to actively growing undesirable weeds, grasses, trees, brush and plants in warm, sunny weather. If not completely killed within 4 weeks, repeat application. In some cases, control of brush and trees sprayed in the fall may not be fully apparent until the following season. Sprayed areas can be reseeded or replanted, 7 days after spraying.

replanted, 7 days after spi	ayıng.		·
USES	SPRAYING INSTRUCTIONS	WEEDS CONTROLLED	MIXING RATE
spot spraying/TRIM and EDGE Undesirable plants in and around: •fences •trees* •driveways •flower beds •walkways •shrubs	Apply to actively growing plants. Apply to annual weeds anytime after emergence. For perennial weeds, apply after seed heads or flowers appear. Avoid spray contact with foliage, stems or green bark of desirable plants.	Most annual and perennial weeds and grasses such as	ANNUALS - 1½ fl oz (3 tbsp) per 1 gallon water PERENNIALS
•Replacement of worn out lawns •Changing to more desirable grass	For best results on lawns, skip at least one mowing prior to spraying. Delay reseeding, sprigging, tilling or sodding for 7 days after spraying. Early spring or fall spraying recommended.	chickweed, ragweed, dandelion (Complete list follows this table).	and BRUSH - 24 fl oz (5 tbsp) per l gallon water 1) Use clean water. 2) Ensure uniform and complete spray coverage. Position
GARDEN/ORNAMENTAL BED PREPARATION FOR PLANTING:	Any ornamental may be planted 7 days after spraying.		sprayer tip 1-2 feet from weeds.
•Flowers •Trees, Shrubs •Vegetables •Berries and small fruits	Vegetables, berries and small fruits may be planted 7 days after spraying. (Complete list follows this table.)		·
BRUSH CONTROL TO RILL: •Woody brush •Trees •Vines	Spray when leaves are fully expanded (spring-early summer) or when flowers or berries appear (mid-summer - fall). Spray trees and brush up to 5 feet in height. For taller plants, cut down and spray regrowth.	Most brush, such as poison ivy, blackberry and kudzu (Complete list follows).	

^{*}Note: If Roundup is used to control undesirable plants around fruit or nut trees or grapevines, allow 21 days before eating the fruits or nuts.



WEEDS CONTROLLED

When applied as recommended under the conditions described in the Use Directions Table. Roundup Super Concentrate controls many common weeds including the following: [pictures of several common weeds]

Annuals

Barnyardgrass
Bluegrass (annual)
Chickweed
Crabgrass
Foxtail
Lambsquarter (common)
Lettuce (prickly)
Mustard (tansy)

Pennycress (field)
Pigweed (redroot, smooth)
Ragweed (common)
Ryegrass (annual)
Sandbur (field)
Shepherdspurse
Sowthistle

Perennials

Bahiagrass
Bermudagrass
Bindweed (field)
Bluegrass (Kentucky)
Bromegrass (smooth)
Clover (red, white)
Dallisgrass
Dandelion
Fescue species

Fescue (tall)
Johnsongrass
Nutsedge (purple, yellow)
Orchardgrass
Quackgrass
Ryegrass (perennial)
Thistle (Canada)
Timothy
Vaseygrass

Brush

Alder
Blackberry
Cherry
Dewberry
Elderberry
Honeysuckle
Kudzu
Oak

Poison Ivy Poison Oak Raspberry Rose (multiflora) Sumac Trumpetcreeper Willow The following vegetables, small fruits and berries may be planted (by seed, rooted cuttings or transplants) 7 days after spraying. If it is desired to plant vegetables, small fruits and berries other than those in the below list, wait for 30 days after spraying.

VEGETABLES

ARTICHOKE, JERUSALEM ASPARAGUS BEANS (ALL) BEET GREENS BEETS (RED, SUGAR) BROCCOLI (ALL) BRUSSELS SPROUTS CABBAGE (ALL) CANTALOUPE CARROT CAULIFLOWER CASABA MELON CELERY CHARD, SWISS CHICORY COLLARDS CORN CRENSHAW MELON CUCUMBER EGGPLANT ENDIVE GARLIC GOURDS GROUND CHERRY HONEYDEW MELON HONEY BALL MELON HORSERADISH KALE KOHLRABI LEEK LENTILS LETTUCE MANGO MELON MELONS (ALL) MUSKMELON MUSTARD GREENS OKRA ONION RAPE GREENS PARSLEY PARSNIPS PEAS (ALL) PEPPER (ALL) PERSIAN MELON POTATO (IRISH, SWEET) PUMPKIN

RHUBARB
RUTABAGA
SPINACH (ALL)
SQUASH (SUMMER, WINTER)
TOMATILLO
TOMATO*
TURNIP
WATERCRESS
WATERMELON
YAMS

SMALL FRUITS AND BERRIES

BLACKBERRY
BLUEBERRY
BOYSENBERRY
CRANBERRY
CURRANT
DEWBERRY
ELDERBERRY
GOOSEBERRY
HUCKLEBERRY
LOGANBERRY
OLALLIEBERRY
RASPBERRY (BLACK, RED)
STRAWBERRY

*Tomatoes from seed only. Wait 30 days for rooted transplants.

RADISH

(INSIDE LABEL LAST PAGE)

STORAGE AND DISPOSAL (moved from above)

Storage: Store this product only in its original container and in a secured storage area. Protect container from freezing.

PRODUCT DISPOSAL:

- Monsanto is committed to responsible environmental practices and recommends that all of the product be used up, carefully following all label directions and precautions.
- If necessary to dispose of partially filled product container, then securely wrap it in several layers of newspaper and discard in trash.

EMPTY CONTAINER:

- Do not reuse container. Emptied container retains vapor and product residue. Observe all labeled safeguards until container is discarded.
- Securely wrap empty container in several layers of newspaper and discard in trash.

SPILL OR LEAK: In case of spill or leak, soak up with paper towels and discard in trash.

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For more product information or questions, call toll-free 1-800-225-2883, 8:30AM - 5:00PM Central Time. MONDAY-FRIDAY (picture of telephone receiver)

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BACK PANEL (AFFIXED TO CONTAINER)

READ THE ENTIRE LABEL BEFORE USING THIS PRODUCT. USE ONLY ACCORDING TO THE DIRECTIONS IN THE USE DIRECTIONS TABLE AND OBSERVE ALL PRECAUTIONS.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

WARNING

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY.

HARMFUL IF SWALLOWED OR INHALED.

Do not get in eyes or on clothing.

Wear safety glasses.

Avoid breathing vapor or spray mist.

Wash thoroughly with soap and water after handling.

Remove contaminated clothing and wash before reuse.

FIRST AID: IF IN EYES, immediately hold eyelids open and flush with plenty of water for at least 15 minutes. Get medical attention.

IF INHALED, remove individual to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

IF SWALLOWED, this product will cause gastrointestinal tract irritation. Immediately dilute by swallowing water or milk. Get medical attention.

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000. [picture of telephone receiver]

NOTICE: BUYER ASSUMES ALL RESPONSIBILITY FOR SAFETY AND USE NOT IN ACCORDANCE WITH DIRECTIONS. IF THESE TERMS ARE NOT ACCEPTABLE, RETURN AT ONCE UNOPENED. (moved from inside label)

Environmental Hazards

Do not apply directly to water. To areas where-surface water is present, or to intertidal areas below-the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

BACK PANEL CONT'D.

PRECAUTION: SEE "DIRECTIONS FOR USE" FOR IMPORTANT CONTAINER PRECAUTIONS, and inside label for storage and disposal information.

This product is protected by U.S. Patent No. 4,405,531. Other patents pending. No license granted under any non-U.S. patent(s).

REFORMULATION OR REPACKAGING FOR SALE IS PROHIBITED

@Trademark of Monsanto Company @MONSANTO COMPANY (year of copyright) MONSANTO COMPANY AGRICULTURAL PRODUCTS ST. LOUIS, MISSOURI 63167 U.S.A.

EPA Reg. No. 524-445 EPA Est. 524-LA-1

(print plate number)

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Katherine A. Buteau

October 18, 1994

PAPERMORK REDUCTION ACT MOTICE and INSTRUCTIONS

PAPERMORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, information Policy Brench, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Ramagement and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [[f not exempted by 40 CFR 152.81 (b) (4)];

2. Confidential Statement of Formula (EPA Form #570-4);

3. Formulator's Exemption Statement (EPA Form 6570-27);

4. Five copies of draft labeling;

Three copies of any data submitted;

6. Authorization letter where applicable;

7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft Labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in mach a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission. Submission of Data - Data submitted in support of this ryplication must be submitted in accordance with PR Motice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections 1, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

- Company/Product Mumber Insert your Company Number, if one has been assigned by EPA. This number may have been assigned
 to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product
 Number.
- EPA Product Renager If known, fill in the name and PN number of the EPA Product: Ranager.

3. Proposed Classification - Specify the proposed classification of this product.

- 4. Product Name Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
- 5. Name and Address of Applicant The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.

6. Expedited Review - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and tabeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

Subject of submission - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in Connection with new registration or applicable amendments.

Type of Packaging - Check the appropriate block if your product will be packaged in the indicated packaging types.
 Indicate the size of the individual packets and number per retail container.

2. Type of BXLI: Container - Indicate type of container in which product will be surfacted.

3. location of Bet Contents - Specify the net contents of all retail containers for your product.

4. Size(s) of Betail Container - Specify the net contents of all retail containers for your product.
5. Location of the Directions - Indicate the location of the use directions for your product.

J. Ammer in which label is affixed to product - indicate the method product label in attached to retail container. A decided

STATION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e.,

Per products registration, resubmission, "ma-too," reregistration, etc.

1-5. Self-exploretory.

6. EPA Use Only.

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October 18, 1994

Mr. Robert J. Taylor, Product Manager 25 OPP Mailroom (H7505C) US Environmental Protection Agency 401 M Street, SW Washington, DC 20460

Dear Mr. Taylor:

Monsanto Company is requesting acceptance of label amendments for Roundup Super Concentrate Grass & Weed Killer, EPA Reg. No. 524-445. This product is sold by both the Solaris Group and the Agricultural Group of Monsanto Company under various names.

We are requesting approval of additional language for the homeowner label. Roundup Super Concentrate Weed and Grass Killer, which will allow the use of the ORTHO DIAL in SPRAY hose-end sprayer. Over the years, we have gotten many calls on our consumer affairs phone line, from consumers who are interested in using this application technique. This application method is appropriate for large jobs such as lawn renovation or brush control. Currently, this type of hose-end application is allowed on our ORTHO Systemic Weed & Grass Killer, EPA Reg. No. 239-2469. We believe that by readily providing applicator settings, we provide the homeowner with proper application rates.

Secondly, we are amending our label to reference dilution of this product into the Roundup Ready-To-Use bottle. Dilution instructions are only on the labelled ready-to-use bottle so that the consumer will dilute the product only into a properly labeled container. WEED-B-GON Weed Killer, EPA Reg. No. 239-2499 is labeled for refilling using WEED-B-GON Lawn Weed Killer. We believe proper refill instructions support both the proper use of products and the national goal of reducing household waste and encourage container reuse.

Thirdly, we are requesting approval of the placement of the American Zoological Association (AZA) emblem on our retail package. The AZA is the organization representing accredited zoos and aquariums in the US and Canada. Its mission is to serve as an educational and professional resource for species preservationists, zoos and aquariums around the world. Our Species Survival Plan supports the important work of this organization. By displaying this emblem, we create curiosity about the organization and provide a tool to further its goal of educating the public about endangered species. We make no claim for our product but believe the public service message for this organization is invaluable.

The Solaris Group

P.O. Box 5006 - 2527 Camino Ramon, Suite 200 - San Ramon, CA 94583 - (510) 355-3300 - Fax (510) 355-3530

Lastly, we are reducing the Environmental Hazards water statement as allowed by PR Notice 93-8.

If you have questions about this request, please contact Dr. Russell P. Schneider at 202-783-2460 or me at (510) 355-3339. Your attention to this matter at your earliest convenience is appreciated.

Sincerely,

Katherine A. Buteau

Katherine a Butian

Registration Specialist

445epa.930 ·

NOV 16 1994

Ms. Lydia A Suba Monsanto Company 700 14th Street, N.W. Suite #1100 Washington, D.C. 20005

Dear Ms. Suba:

Subject: Roundup Herbicide (Preplant Use With Hybird Poplars) EPA Registration No. 524-445 Your Letter Dated October 19, 1994

The labeling referred to above submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. Please submit five (5) copies of your final printed labeling before you release the product for shipment. A stamped copy of labeling is enclosed for your records.

Sincerely,

Robert J. Taylor Product Manager 25 Pungicide-Herbicide Branch Registration Division (7505C)

SUPPLEMENTAL LABELING

READ AND FOLLOW THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup herbicide and this supplement.

ROUNDUP®

HERBICIDE BY MONSANTO

EPA Reg. No. 524-445

ROUNDUP HERBICIDE FOR USE IN HYBRID POPLAR (Populus spp.) PRODUCTION.

Keep out of reach of children.

WARNING!

STATE OF THE PARTY OF THE PARTY

In case of emergency involving this product, Call Collect, day or night, 314-694-4000.

Roundup® is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with the labeling.

This label must be in the possession of the user at the time of the herbicide application.

See" General Information" and "Mixing, Additives, and Application Instructions" sections of the Roundup herbicide label booklet for essential product performance information.

PREPLANT

This product is recommended for use prior to planting Populus spp. This includes, but is not limited to hybrid populars and hybrid cottonwoods.

See the Roundup herbicide label booklet for specific rates for the weeds being controlled.

ACCEPTED NOV 16 1994

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 524-445

IN CROP USES

DIRECTED SPRAYS

Use a 2 percent spray solution as a spray-to-wet application for the control of undesirable woody brush and trees. To control herbaceous weeds, use a 1 to 2 percent solution. Avoid contact of spray, drift, or mist with foliage, green bark or non-woody surface roots of the Populus spp.

Mix 2 to 6 quarts of a nonionic surfactant per 100 gallons of spray solution (0.5 to 1.5 percent spray volume). Use a surfactant with greater than 70 percent active ingredient.

WIPERS

This product may be used through wick or other suitable wiper applicators for control or partial control of grass and broadleaf weeds listed on the label.

For wick applicators, mix 1 gallon of this product with 2 gallons water to make a 33% solution. For wiper systems that can handle thicker solutions, such as force fed systems, a 33 to 100% Roundup solution may be used.

For best results ensure that the herbicide solution is allowed to contact the maximum amount of leaf surface. As weed densities increase, decrease equipment speed to allow sufficient herbicide flow to wet all weed surfaces contacted. Weeds not contacted will be unaffected.

AVOID HERBICIDE CONTACT WITH DESIRABLE VEGETATION. Desirable vegetation contacted by the herbicide solution may be injured or controlled. This includes foliage, fruit, or green stems.

Read "LIMIT OF WARRANTY AND LIABILITY" in the label booklet for Roundup before using this product. Those terms apply to this supplemental labeling and, if those terms are not acceptable, return the product unopened at once.

©MONSANTO COMPANY 1994

MONSANTO COMPANY AGRICULTURAL PRODUCTS ST. LOUIS, MISSOURI 63167

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Roundup® Herbicide	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC. 20005	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No.
Check if this is a new address	Product Name
Section	ll
Amendment - Explain below	Final printed labels in response to
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Resubmission in response to Agency letter dated	"Me Too" Application
Notification - Explain below.	Other - explain below.
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Section 1. Contact Point (Complete items directly below for identification of in-	IV dividual to be contacted, if necessary; to process this application() (30), (35).
Name Dr. Russell P. Schneider	Agricultural Regulation Telephone Not (Include Area Code) Directors - Page 1 - (202) 783-2460 Page 1 -
I certify that the statements I have made on this form and all attache	ments thereto are true accurate and completence to a comp
	gistration Manager
Typed Name 5. Date Lydia A. Suba	10/19/94
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Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

October 19, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup® Herbicide (EPA Reg. No. 524-445)

Submit Supplemental Label - For preplant use in Hybrid Poplar

Dear Sir:

Attached are five (5) copies of a supplemental label for your review and approval to allow the use of Roundup Herbicide in Populus spp. prior to planting the populars to control undesirable woody brush and trees through directed sprays and wipers.

Please stamp one copy of this label for our use in state registrations. If you have any questions regarding this submission, please contact Dr. Russell Schneider at our Washington office or me at 314-694-2124.

Sincerely,

Lydia A. Suba

Registration Manager

cc: R.P. Schneider

R.D. Voth

D.M. Fee-White

D.A. Humphrey

Dr. Sheila A Schuette Monsanto Company 700 14th Street, N.W. Suite #1100 Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Increase Rate For Control of Red Rice) EPA Registration No. 524-445 Your Letter Dated October 21, 1994

The labeling referred to above submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. Please submit five (5) copies of your final printed labeling before you release the product for shipment; A stamped copy of labeling is enclosed for your records.

Sincerely,

Robert J. Taylor
Product Manager 25
Pungicide-Berbicide Branch
Registration Division (7505C)

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.

ROUNDUP® Herbicide by Monsanto

EPA Reg. No. 524-445

RED RICE CONTROL IN TEXAS ONLY

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

©Roundup is a registered trademark of Monsanto Company.

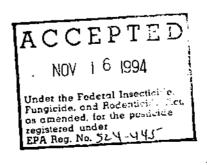
DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup herbicide for essential product performance information.



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RECOMMENDATIONS

This product may be used to control red rice, prior to planting rice. Apply 1 1/2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Use surfactants with a minimum of 70 percent active ingredient. Add 17 pounds of ammonium sulfate per 100 gallons of water.

Flush fields prior to applications to obtain uniform germination and stand of red rice. Make applications when the majority of the red rice plants are in the 2-leaf stage and no more than 4 inches tall. Red rice plants with less than 2 true leaves may only be partially controlled. Do not treat rice fields or levees when the fields contain flood water.

For aerial applications, drift control additives may be used.

Avoid spraying during low humidity conditions, as reduced control may result.

Do not re-flood treated fields for 8 days following application.

Read the "Limit of Warranty and Liability" in the label booklet for Roundup herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

©Monsanto Company 1994

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MONSANTO COMPANY AGRICULTURAL PRODUCTS ST. LOUIS, MISSOURI 63167

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Signature

Signature

EPA Form 8570-29 (Rev-7-91)

a. |x| I am the original data submitter*; or

have notified are: (Check one)

General Offer Statement below.)

Name and Title

Name and Title

United States Environmental Protection Agency Washington, DC 20460

SEPA Certification with Respect to Citation of Data

Form Approved OMB No. 2070-0060 Approval Expires 11-30-93

		i			
Applicants Name and Address	EPA File Symbol/Registration Number	524-445			
Monsanto Company 700 14th Street, N.W., Suite 1100	Product Name Roundup® Her	bicide			
Washington, DC 20005	Date of Application Octob				
NOTE: If your product is a 100% repackaging of is labeled for the same uses, you do not need to sub Exemption Statement (EPA Form 8570-27). 1. This application is supported by all data submitted options are indicated, this application is supported properties or effects of this product that is identical of data that would be required to be submitted if product of identical or similar composition and in the date of aproprial of this application. (Check the pertain to your application.)	ed or cited in the application. In addition do by all data in the Agency's files that coical or substantially similar, and that is of this application sought the initial regist atended uses under the data requirement	on, if cite-all concern the cone of the types ration of a site in effect on			
I certify that, for each study cited in support of the study,	his application for registration that is an	exclusive use			
x I am the original submitter*; or					
I have obtained the written permission of the	e original data submitter to cite that stu	dy*			
3. I certify that, for each study cited in support of th	is application for registration that is not	an exclusive use			

I have obtained the written permission of the original data submitter to cite that study*; or

b. | I have notified in writing the companies that have submitted data I have cited to support this

application and have offered to: (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I

All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the

Date

Date

2/ 199

Those companies that have submitted the studies which I have cited (Selective method*).

* A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the

Sheila A. Schuette, Ph.D.

General Offer to Pay: I hereby offer and agree to pay compensation to other persons, with regard to the approval of this application, to the extent required.

Manager, Regulatory Affairs

Monsanto

> (with

Monsanto Company Suite 1100 700 14th Street, N.W. -Washington, D.C. 20005

October 21, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup® Herbicide (EPA Reg. No. 524-445)

Supplemental Label for Red Rice Control in Texas Only

Dear Sir.

Enclosed for Agency review and approval are five (5) copies of a supplemental label for use of Roundup herbicide to control red rice. The current application rate recommendation is 1 qt/A; however, due to greater weed pressure in Texas, a rate of 1.5 qt/A is needed to control this weed. This higher rate is within the rate range recommended for other weed species on the Roundup label booklet.

Monsanto requests that the Agency approve and stamp the enclosed supplemental label. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed.

If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D.

Manager, Regulatory Affairs

Shila a. Schueld

(314) 694-7248

104

TELEPHONE: (202) 783-2460

FACSIMILE: (202) 783-2468

MIG 1 1 1994

Dr. Sheila A. Schuette Monsanto Company 700 14th Street, N. W., Suite 1100 Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Seed Production of Soybeans With Roundup Ready Gene) EPA Registration No. 524-445 Your Application Dated June 29, 1994

The amendment referred to above, submitted in connection with registration under FIFRA sec. 3(c)(7)(A), is acceptable provided that you:

- 1. Submit and/or cite all data required for registration/reregistration of your product under FIFRA sec. 3(c)(5) and sec. 4 when the Agency requires all registrants of similar products to submit such data.
- 2. Submit five (5) copies of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancelation in accordance with PIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of labeling is enclosed for your records.

Sincerely,

Robert J. Taylor Product Manager 25 Pungicide-Herbicide Branch Registration Division (7505C)

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.

ROUNDUP®
Herbicide by Monsanto

EPA Reg. No. 524-445

ACCEPTED

AUG 1 1 1994

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 524-455

HOODED SPRAYERS IN SUGARCANE

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

ORoundup is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

.his label must be in the possession of the user at the time of application.

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup herbicide for essential product performance information.

RECOMMENDATIONS

This product may be used through hooded sprayers for weed control between the rows of sugarcane. Sugarcane must be at least 3 feet tall.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of the label booklet for Roundup herbicide.

A hooded sprayer is a type of shielded applicator. The spray pattern

is completely enclosed on the top and all 4 sides by a hood, thereby shielding desirable vegetation from the spray solution.

Hooded sprayers which apply the herbicide solution as a spray band should be calibrated on a broadcast equivalent rate and volume basis. Use the following equation to convert from a broadcast rate per acre to a band rate per acre.

Band width in inches Row width in inches	X	Herbicide Broadcast RATE per acre	=	Herbicide Band RATE per acre
Band width in inches Row width in inches	X	Broadcast VOLUME of solution per acre	, =	Band VOLUME of solution per acre

Use nozzles that provide uniform coverage within the treated area. The herbicide solution should contact the entire weed.

Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation.

Do not allow treated weeds to come into contact with desirable vegetation.

Droplets, mist, foam, or splatter of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Minimize the potential for spray particles to escape from under the good by operating the sprayer at appropriate ground speeds, nozzle pressures, and wind speeds. Operation on rough or sloping ground may result in spray particles escaping from the hood.

Contact of this product in any manner to any vegetation to which treatment is not intended may cause damage. Such damage shall be the sole responsibility of the applicator.

Read the "Limit of Warranty and Liability" in the label booklet for Roundup herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

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Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. , Washington, D.C. 20005

June 29, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup® Herbicide (EPA Reg. No. 524-445) Supplemental Label for Seed Production of

Roundup ReadyTM Soybeans

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of a supplemental label for Roundup herbicide, which allows the use of Roundup herbicide in the production of Roundup Ready Soybean seed. This use is necessary as a quality control measure to ensure that the Roundup Ready soybean seed produced by seed companies will be free of any non-glyphosate-tolerant soybean seeds. This label will only be distributed to a limited number of seed companies who are working closely with Monsanto on the development of this new technology. Dr. Russ Schneider of Monsanto recently discussed the need for this proposed label with Mr. Carl Grable of EPA.

The proposed label is supported by the data contained in MRIDs 43260401-3, which were submitted to the Agency on May 27, 1994. These data demonstrate that at an application rate of one quart per acre, which is the maximum rate allowed in this proposed supplemental label, the residue levels of glyphosate in all soybean raw agricultural commodities (RAC) and processed fractions will be within existing tolerances. The maximum glyphosate residue level found in each RAC and the corresponding tolerances are listed below; all residues are within existing tolerances.

Seed Production Label June 29, 1994 Page 2

Commodity	Maximum Glyphosate Residue @ 1 qt/a Application Rate (ppm)	Tolerance (ppm)	
Soybean Grain	2.3	20	
Soybean Forage	. 9.2	15	
Soybean Hay	8.5	200	

Although the soybean seed produced will be within existing tolerances for glyphosate, the seed will remain under the control of the seed producer and will not be sold until the commercial use label, which was submitted on May 27, 1994, is approved by the Agency. No forage will be collected during seed production, since the plants must be grown to maturity in order to harvest the seed. After harvest of the seed, the remaining plant material will be plowed under. In the event that a soybean production field is damaged (e.g., by hail) and cannot be grown to maturity, any remaining plants will be destroyed.

The production of Roundup Ready Soybean seeds represents a significant financial investment by the seed companies. The enclosed supplemental label is needed to protect that investment by ensuring that any non-tolerant volunteers are destroyed prior to seed formation. This financial investment also ensures that the Roundup Ready Soybean seeds will not enter the market before the commercial use label is approved -- the seed will only be sold when a premium can be obtained for the technology.

In summary, this label is needed by producers of Roundup ReadyTM Soybean seed as a quality control tool, the seed will not be sold until the commercial use is approved, and, in the rare case that any of the seed or other plant material inadvertently enters channels of trade prematurely, glyphosate residues will be within existing tolerances. Monsanto therefore requests that the Agency approve and stamp the enclosed supplemental label. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed. If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D. Manager, Regulatory Affairs

Stula a. Schult

(314) 694-7248

cc: R.P. Schneider B.H. Wells

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Roundup® Herbicide	_ _			
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United States Environmental Protection Agency Washington, DC 20460

Form Approved OMB No. 2070-0060 Approval Expires 11-30-93

SEPA Certification with Respect to Citation of Data

Applicants	Name and Address		EPA File Symbol/Re		
	isanto Company			524-445	
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Signature

Keep 564-445

AUG 1 1 1994

Dr. Russell P. Schneider Monsanto Company 700 14th Street, N.W. Suite 1100 Washington, D.C. 20005

Dear Dr. Schneider:

Subject: Glyphosate Registrants
Your Letters Dated March 29, and August 3, 1994

This letter is in response to your letters dated March 29 and August 3, 1994 inquiring as to other registrants of glyphosate. A review of our records indicate the none of the registrants listed in the subject letters hold U.S. registrations for glyphosate.

Sincerely,

Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (7505C)

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. ... Washington, D.C. 20005

March 29, 1994

Office of Pesticide Programs - H7505C Document Processing Desk U.S. Environmental Protection Agency Room 266A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, VA 22202

Attention: . Mr. Robert J. Taylor

Product Manager (25)

Subject: Glyphosate registrants

Dear Mr. Taylor,

Monsanto continues to be informed by regulatory officials outside the United States of documents being submitted to them indicating the US registration of glyphosate by companies other than Monsanto. Would you please check the EPA records and provide me a letter indicating whether the following companies hold US registrations for glyphosate?

Cheminova (Denmark)
Comlets Chemical Industrial Company Ltd (Taiwan)
Crystal Chemical Inter-America (USA)
Forward International Ltd. (Taiwanese company)
Helm AG (Germany)
Makteshim-Agan (Israel)
Marman USA, Inc
Micro-Flo Company (USA)
Pillar International (Taiwan)
Rotam Group (Hong Kong)
Shin Dar Agricultural Chemical Company, Ltd (Taiwan)
Sinochem (Taiwan)

Your attention to this request is very important as we approach our Regulatory contacts outside the US. I will contact you in a few days to check on the timeframe required to fill this request.

Thanks for your help.

Sincerely,

Russell P. Schneider, Ph.D.

Agricultural Regulation Director

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

August 3, 1994

Office of Pesticide Programs - H7505C Document Processing Desk U.S. Environmental Protection Agency Room 266A, Crystal Mali #2 1921 Jefferson Davis Highway Arlington, VA 22202

Attention: Mr. Robert J. Taylor

Product Manager (25)

Subject: Glyphosate registration claimed by Marman

Dear Mr. Taylor,

Monsanto continues to be informed by regulatory officials outside the United States of documents being submitted to them indicating the US registration of glyphosate by Marman USA, Inc. This company claims the product "Atila" was registered by the United States Environmental Protection Agency under EPA Reg. No. 524-308-AA-4873. Monsanto recognizes the 524 to be the Monsanto Company number and 308 corresponds to the EPA Reg. No. for Roundup Export Herbicide. In the past, the California Department of Pesticide Regulation used the AA designation for their own internal purposes of tracking product registrations. The 4873 number has no meaning to Monsanto.

Would you please check your records to verify the "supposed" registration number and advise Monsanto of your findings. Your immediate attention to this issue would be appreciated as Marman USA, Inc. is making significant sales overtones pertaining to a glyphosate product and we would like to clarify the issue. Your attention to this request is very important as we approach our Regulatory contacts outside the US.

Thanks for your help.

Sincerely,

Russell P. Schneider, Ph.D.

Agricultural Regulation Director

AUG 1 1 1994

Dr. Sheila A. Schuette Monsanto Company 700 14th Street, N. W., Suite 1100 Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Use With Hooded Sprayers In Sugarcane)
EPA Registration No. 524-445
Your Application Dated November 8, 1993

The amendment referred to above, submitted in connection with registration under FIFRA sec. 3(c)(7)(A), is acceptable provided that you:

- 1. Submit and/or cite all data required for registration/reregistration of your product under FIFRA sec. 3(c)(5) and sec. 4 when the Agency requires all registrants of similar products to submit such data.
 - 2. Submit five (5) copies of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancelation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Sincerely,

Robert J. Taylor
Product Manager 25
Pungicide-Herbicide Branch
Registration Division (H7505C)

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup, container labels and this supplement.

ACCEPTED

AUG 1 1994

ROUNDUP® Herbicide by Monsanto

EPA Req. No. 524-445

Under the Federal Insecticide, Fungicide, and Rodenticide Act, registered: under EPA Reg. No. 524-445

as amended, for the 1855 cidently For SEED PRODUCTION OF SOYBEANS WITH THE ROUNDUP READYTM GENE

Keep out of reach of children. WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

Roundup® is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATIONS INSTRUCTIONS" sections of the label booklet for Roundup for essential product performance information.

THIS PRODUCT MAY BE USED FOR CONTROL OF NON-NOTE: GLYPHOSATE TOLERANT SOYBEANS IN PRODUCTION FIELDS OF THE ROUNDUP READYTM GENE. SOYBEANS CONTAINING SEVERE INJURY OR DEATH WILL RESULT IF SOYBEAN VARIETIES WHICH DO NOT CONTAIN THE ROUNDUP READY GENE ARE SPRAYED WITH THIS AVOID CONTACT OF THE SPRAY WITH FOLIAGE, GREEN STEMS, PRODUCT. OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS AND TREES, OTHER THAN SOYBEANS WITH THE ROUNDUP READY GENE, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

USE RECOMMENDATIONS:

When applied as directed under the conditions described, this product will control non-glyphosate tolerant soybeans in seed

production fields of soybeans containing the Roundup Ready gene. This product may be applied using ground spray equipment only. Apply 1 quart of this product plus 0.5 to 1.0% nonionic surfactant by total spray volume in 5 to 20 gallons of spray solution per acre as a broadcast spray

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT.

Application Timing - This product can be applied to Roundup Ready Soybeans from the cracking stage through the flowering stage.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C. 20460

APR | 5 | 1994

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: ID# 000524-00445. Glyphosate, isopropylamine salt

(Roundup® Herbicide).

Letter of 11/8/93: Proposed Supplemental Label -Add Use with Hooded Sprayers in Sugarcane.

DP#: D197609 CBTS#: 12972 Chem#: 103601

Maxie Jo Nelson, Ph.D., Chemist FROM:

Chemistry Branch I - Tolerance Support

Health Effects Division (7509C)

THRU: Robert S. Quick, Section Head

Chemistry Branch I - Tolerance Support

Health Effects Division (7509C)

TO: V. Walters/R. Taylor, PM Team 25

> Fungicide-Herbicide Branch Registration Division (7505C)

BACKGROUND

By letter dated 11/8/93, Monsanto Co. (registrant) has submitted for Agency review and approval a supplemental label for Roundup® Herbicide (EPA Reg. No. 524-445) for a hooded sprayers use in sugarcane.

Hooded sprayers are a relatively recent innovation in shielded sprayer technology. Unlike traditional shielded sprayers, hooded. sprayers are completely enclosed on all four sides and the top. They are mounted on the tractor so the bottom of the hood is in very close contact with the ground, and herbicide applications are made to the ground between the crop rows. The spray nozzles for applying the herbicide are located on the inside of the hood, so that only the weeds in between the crop rows are contacted with the spray; the crop itself is shielded from the herbicide.

Monsanto believes its supplemental label request is supported by the glyphosate/sugarcane field trial residue data contained in EPA MRID# 00108140 (PP#6G1826).

DISCUSSION

Roundup® is a water-soluble liquid formulation containing 41% glyphosate in the form of its isopropylamine salt as active ingredient (4 lbs ai/gal; 3 lbs ae/gal).

Roundup® is registered for control of annual and perennial weeds in many crops. The label currently allows product use in sugarcane fields by broadcast application prior to planting and/or by spot treatments postemergence.

Monsanto's supplemental labeling is for postemergence treatment using hooded sprayers. Treatment would be directed to the weeds between the rows of sugarcane, just prior to close-in (layby). This, in effect, imposes a several month PHI.

The rate of application will depend upon the species of annual or perennial weeds to be controlled. Recommended label rates range between 8-160 fl ozs (0.25-5 qts) of product/A/application. (A 0.5-2.0% solution for spot treatments.) The combined total of all uses may not exceed 10.6 qts (10.6 lbs ai; 7.95 lbs ae) of product/A/year. Do not feed or graze treated sugarcane forage following application.

Report MRID# 00108140 (glyphosate/sugarcane) contains field trial residue data for both preplant and spot treatment uses. (1) A preplant soil application at 10 lbs ae/A resulted in NDR (<0.05 ppm each) of glyphosate and its metabolite aminomethylphosphonic acid (AMPA) in sugarcane sampled 6 and 12 months after planting; (2) A postemergent, soil-directed, broadcast application (at 6 lbs ae/A) between-the-rows of 5-6 month old cane, just prior to close-in, resulted in <0.05-0.09 ppm glyphosate and <0.05 ppm AMPA in cane sampled $5\frac{1}{2}$ -6 months later; and, (3) Spot treatments (at 5 and 10 lbs ae/A) to the ground around the field edges of sugarcane resulted in NDR in cane harvested 6 weeks later.

Based on those data, EPA established a tolerance (40 CFR 180.364) of 0.1 ppm for combined residues of glyphosate and AMPA in/on sugarcane. That tolerance was later raised to 2 ppm based on use of glyphosate as a plant growth regulator (PP#8E2122; Polado L, EPA Reg. No. 524-350) close to harvest.

CONCLUSIONS

- 1. Residues of <0.1 ppm glyphosate and <0.05 ppm AMPA would be expected to result from the requested hooded sprayers use of Roundup® Herbicide (EPA Reg. No. 524-445) in sugarcane.
- 2. Amending the registered Roundup® Herbicide label to permit the requested hooded sprayers use in sugarcane prior to layby will not affect the adequacy of the established glyphosate tolerances on sugarcane (2 ppm) and sugarcane molasses (30 ppm).
- 3. Since no increase in the tolerance level is involved, no new DRES run should be needed.

RECOMMENDATION

CBTS has no objection to the Roundup® Herbicide (EPA Reg. No. 524-445) label being amended to add the proposed postemergence use by hooded sprayers between rows in sugarcane prior to layby.

cc: M. Nelson, RF, Circ, Glyphosate Amended Registration File, Glyphosate SF.

7509C:CBTS:MJN:mjn:CM#2:Rm804U:305-7585:GLYP445.sgr:4/14/94. RDI:SecHd:RSQuick:4/14/94:BrChf:DEdwards:4/14/94.

Please read instructions on reverse before completing form.	Form Approved. OMB No. 2070-0060, Approval expires11-30-93					
(A) United States Environmental Protect	ction Agency Registration OPP Identifier Number					
	H7505C)					
Office of Pesticide Programs (New Yearhington, DC 20460 Application for Pe	American					
, PF	Sticide. Constant					
Section I	In Describing to a second classification					
Company/Product Number 524-445	2. EPA Product Manager 3. Proposed Classification					
	Robert J. Taylor X None Restricted					
4. Company/Product (Name)	PM# A None Restricted					
Roundup® Herbicide						
5. Name and Address of Applicant (Include ZIP Code)	6. Expedited Review. In accordance with FIFRA Section 3(c)(3)					
Monsanto Company	(b)(i), my product is similar or identical in composition and labeling to:					
700 14th Street, N.W., Suite 1100	i to:					
Washington, D.C. 20005	EPA Reg. No.					
Check if this is a new address	Product Name					
Section I I						
X Amendment - Explain below	Final printed labels in response to					
	Agency letter dated					
Resubmission in response to Agency fetter dated	*Me Too* Application.					
Notification - Explain below.	A Company of Company of the Company					
	Other - explain below.					
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Section IV 1. Contact Point (Complete items directly below for identification of indivi	dual to be contacted, it necessary nto process this application) #27.17.47.					
Dr. Russell P. Schneider	ricultural Regulation / Telephone Nos (Include Area Code)					
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I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. acknowledge that any: knowingly false or misleading statement may be punishable by fine or imprisonment or a statement of the complete or misleading statement may be punishable by fine or imprisonment or a statement or a statement may be punishable by fine or imprisonment or a statement or a						
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PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];

2. Confidential Statement of Formule (EPA Form 8570-4);

3. Formulator's Exemption Statement (EPA Form 8570-27);

4. Five copies of draft labeling;

Three copies of any data submitted;

6. Authorization letter where applicable;

7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission. Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Motice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

<u>SECTION I</u> - This section must be completed, as applicable, for all registration actions.

- Company/Product Number Insert your Company Number, if one has been assigned by EPA. This number may have been assigned
 to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product
 Number.
- 2. EPA Product Manager If known, fill in the name and PM number of the EPA Product Manager.

3. Proposed Classification - Specify the proposed classification of this product.

4. Product Name - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.

5. Name and Address of Applicant - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an ...

authorized agent residing in the United States to act for them in all registration matters. The name and complete smalling address of such an agent must accompany this application.

6. Expedited Review - FIFRA section 3 (c) 3 (8) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

<u>SECTION II</u> - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a <u>specific EPA-registered product</u>. This section is <u>not to be</u> used for a new application for registration.

1. Subject of submission - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Forsula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

<u>SECTION III (l'ackaging and Container Information)</u> - This Section must be completed for all applications submitted in connection with new registration or applicable anadments.

Type of Puckaging - Check the appropriate block if your product will be packaged in the indicated packaging types.
 Indicate the size of the individual packets and number per retail container.

2. Type of Retail Container - Indicate type of container in which product will be marketed.

3. Location of Net Contents - Specify the net contents of all retail containers for your product.

4. Size(a) of Retail Container - Specify the net contents of all retail containers for your product.

5. Location of the Directions - Indicate the location of the use directions for your product.

6. Nammer in which label is affixed to product - Indicate the method product label is attached to retail container.

SECTION IV (Contact PGint) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "me-too," reregistration, etc.
1-5. Self-explanatory.

6. EPA Use Only!

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125

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AUG 1 1 1994

Dr. Sheila A. Schuette Monsanto Company 700 14th Street, H.W. Suite 1100 Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Removal of 30-Day Crop Rotation Restriction)
EPA Registration No. 524-445
Your Letter Dated August 16, 1993

The scientific review and evaluation of the subject request have been completed. The following are comments and/or conclusions. A copy of the review is enclosed for your information.

- 1. The available data support a 30-day plant back interval for all crops for which the use of glyphosate is not registered.
- 2. No data for 0 day plant-back intervals have been submitted.
- 3. The possibiltiy thus exists for illegal glyphosate residues in spices or crops not included inthe crop groupings if they were to be planted 0 days after treatment.
- 4. In order for the Agency to remove the 30 day restriction you must demonstrate that significant residues would not be present in rotational crops planted 0 days after treatment.

Sincerely,

 $^{\mathcal{N}_{(n)}}$

Robert J. Taylor Product Manager 25 Fungicide-Herbicide Branch Registration Division (7505C)

United States Environmental Protection Agency Washington, DC 20460

Form Approved OMB No. 2070-0060 Approval Expires 11-30-93

Washington, DC 20460 Certification with Respect to Citation of Data

Applicants Name and Address		EPA File Symbol/Regi	stration Number	<u> </u>	•
Monsanto Company			24-445		
700 14th Street, N.W., Sur	ite 1100	Product Name			
Washington, D.C. 20005		Roundup®	Herbicide		
		Date of Application		-	<u> </u>
		Novembe	r 8, 1993		
is labeled for the same uses, you Exemption Statement (EPA For Inc.) 1. This application is supported options are indicated, this approperties or effects of this of data that would be required in the date of aproposal of this same than the date of appropriation of the same transfer of the same uses, you are transfer or the same uses, you are transfer of the same uses.	ou do not need to submit orm 8570-27). Ed by all data submitted opplication is supported la product that is identicated to be submitted if the lar composition and inte	or cited in the application of cited in the application and the Age of the substantially similar application sought anded uses under the cited of th	st submit the For- ation. In addition ncy's files that co- lar, and that is on the initial registra data requirements	mulator's i, if cite-all ncern the ne of the types ation of a s in effect on	·
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Chief, Information Policy Branch, PM-223 U.S. Environmental Protection Agency 401 M Street, S.W. Washington, DC 20460

and to

Office of Management and Budget Paperwork Reduction Project (2070-0060) Washington, DC 20503



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C. 20460

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

MAY | 2 1994

MEMORANDUM

SUBJECT: ID#000524-00445. Label Amendment for Roundup

(Glyphosate) MRID# none. Barcode D200041. Case 002698.

CBTS# 13309.

FROM: G.F. Kramer Ph.D., Chemist

Tolerance Petition Section III

Chemistry Branch I, Tolerance Support

Health Effects Division (7509C)

THRU: P.V. Errico, Section Head

Chemistry Branch I, Tolerance Support

Health Effects Division (7509C)

TO: Robert Taylor, Product Manager

Vickie Walters, Team 25 Reviewer Registration Division (7505C)

Monsanto has submitted a proposed label amendment for Roundup (glyphosate). The registrant wishes to remove the crop rotation restriction which imposes a 30 day minimum plant-back interval for crops on which the use of glyphosate is not registered. The registrant claims that such a restriction is unnecessary as tolerances are established for every crop group except spices. Tolerances on these groups as defined in 40 CFR § 180.34 are not currently established, but the tolerance reassessment in the Residue Chemistry Chapter for the glyphosate RED does recommend establishing tolerances for all groups except spices.

CONCLUSIONS/RECOMMENDATIONS

The existing data support a 30 day plant-back interval for all crops on which the use of glyphosate is not registered. In order to change this plant-back interval to 0 days (i.e., removing the restriction), the registrant must demonstrate that significant

glyphosate residues would not be present in rotational crops planted 0 days after treatment. CBTS thus recommends against the proposed label amendment.

DETAILED CONSIDERATIONS

The current crop rotation restriction on the Roundup label reads: "Do not plant subsequent crops other than those on the label for 30 days following application." The registrant proposes to remove these restrictions, thus allowing a 0 day plant-back interval for rotational crops. Minimum plant-back intervals are determined from the plant-back interval in the rotational crop studies at which there are no significant residues detected in any rotational crop. In the glyphosate confined crop rotation studies (MRID#s 415432-01, -02), residues of glyphosate at a level of >0.01 ppm in crops planted back 30 days after treatment were observed only in barley grain (Memo, A. Abramovitch 10/14/92). However, since this residue (0.018 ppm) was well below the LOQ of the enforcement method (0.05 ppm), it is not considered to be significant. These data thus support a 30 day plant-back interval for all crops for which the use of glyphosate is not registered. No data for 0 day plant-back intervals has been submitted. The possibility thus exists for illegal glyphosate residues in spices or crops not included in the crop groupings if they were to be were planted 0 days after treatment. In order to change this plant-back interval to 0 days (i.e., removing the restriction), the registrant must demonstrate that significant glyphosate residues would not be present in rotational crops planted 0 days after treatment. CBTS thus recommends against the proposed label amendment.

cc: Kramer, circ., R.F., S.F.

RDI: P.V. Errico (5/9/94), R.A. Loranger (5/11/94), E.C. Saito (5/12/94)

G.F. Kramer:804V:CM#2:(703)305-5079:7509C

Herbicide h [10] Complete Directions for the EPA Reg. No. 524-445

AVOID CONTACT WITH FOLIAGE, STEWN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUC-TION MAY RESULT.

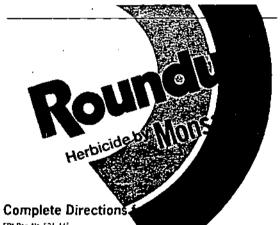
*Roundup is a registered trademark of Monsanto Company.

1994-1

898.07-000.45/53

Read each of these sections of this tabel for essential product performance infor-

USE THESE CONVENIENT SECTION MARKERS.



EPA Reg. No. 524-445

AVOID CONTACT WITH FOLIAGE, STEMS, EXPOSEO NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

*Roundup is a registered trademark of Monsanto Company.

1994-1

898.07-000.45/53

Read each of these sections of this label for essential product performance inforquation.

USE THESE CONVENIENT SECTION MARKERS.

Read the entire label before using this product.

Use only according to label instructions.

Read "LIMIT OF WARRANTY AND LIABILITY" before buying or using it terms are not acceptable, return at once unobened.

REFORMULATION IS PROMISHED. SEE INOMIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

LIMIT OF WARRANTY AND LIABILITY

This Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS WARRANTY OR MAPLED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tent or otherwise.

Boyer and all users are responsible for all loss or damage from use or handling which results from concitions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the desence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF HIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR AIM OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IT NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY IN NO EVENT SHALL THIS COMPANY OR AIM OTHER SELLER SE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Boyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

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LIMIT OF WARRANTY AND LIABILITY	5, 6
PRECAUTIONARY STATEMENTS	6
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HONCROP USES	59 through 84
CROPPING SYSTEMS	33 (11) 0081 01

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Keep out of reach of children.

WARNING! AVISO!

Si usted no entiende la etiqueta, busque a afguien para que se la explique a osteó en detalle, (if you do not understand the label, find someone to explain it to you in detail.)

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY.

HARMFUL IF SWALLOWED OR INHALED.

Do not get in eyes or on clothing.

Avoid breathing vapor or spray mist.

FHRST AID: IF IN EYES, immediately hold cyclids open and flush with plenty of water for at least 15 minutes. Get medical attention.

IF thRALED, remove individual to tresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. Get medical attention.

IF SWALLOWED, this product will cause gashointestinal tract irritation. Immediately dilute by swallowing water or mills. Get medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

Personal Protective Equipment

Applicators and other handlers must wear: long-sleeved shirt and long pants, shoes plus socks, and protective eyewear. Discard clothing and other absorbent materials that have been direnched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and not water. Keep and wash PPE is separately from other launchy.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements tisted in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations:

Users scould:

- · Wash hands before eating drinking chawing gum, using tobacco, or using the toilet.
- Remove ctothing immediately if pesticide gets inside. Then wash thoroughly and out on clean ctothing.

In case of an emergency involving this product, Cast Callect, day or night, (314) 694-4000.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertigal areas below the mean high water mark. Do not contaminate water when disposing of economient washwaters.

Physical or Chemical Hazards

Seray solutions of this product should be mixed, stored and applied using only stainless steel, aluminorm, fiberglass, plastic or plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALYAVIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

ACTIVE INCOCURENT

*Glyphosate, N-(onosphonomethyl)glycine, in the

....41.0% ... 59.0%

form of its isopropytamine salt.
INTERT INGREDIENTS:

ייים אנים עירו את:

*Contains 480 grams per hitre or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per litre or 3 pounds per U.S. gallon of the acid, glyphosate

This product is protected by U.S. Patent No. 4,405,531. Other patents pending. No ocease granted under any non- U.S. patent(s).

DIRECTIONS FOR USE

It is a violation of Federal faw to use this product in any manner inconsistent with its labeling for any requirements specific to your State or Tribe, consult the agency responsible for posticide regulations.

Agricultural Use Requirements

Use this product only in accordance with its tabeling and with the Morker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. If contains requirements for training, decontamination, notification, and emergency assistance. If also contains specific instructions and exceptions pertaining to the statements on this tabel about personal protective equipment (PPE) and restricted-entry interval. The requirements in this opionity apply to uses of this product that are covered by the Worker Protection Standard.

Do not apply this product in a way that wift contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application Do not enter or allow worker entry into treated areas during the restricted entry interval (RED of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been freated, such as plants, soil, or water, is: coveralls, waterproof gloves, shoes plus socks, and protective eyewear.

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are 1101 within the scope of the Youter Protection Standard for agricultural pesticules (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

keep people and pets off treated areas until spray solution has dired.

Storage and Disposal:

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

See container label for STORAGE AND DISPOSAL instructions.

GENERAL INFORMATION

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT EXCEPT UNDER CONDITIONS AS SPECIFIED WITHIN THIS LABEL.

This product, a water soluble liquid, mixes readily with water to be applied as a foliar spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field-type sprayers after dilution and thorough mixing with water in accordance with label instructions.

This product moves through the plant from the point of tollage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds may not occur for 7 days or more. Extremely cool or cloudy weather following treatment may slow activity of this product and delay visual effects of control. Visible effects are a gradual witting and yellowing of the plant which advances to complete browning of above-ground growth and-deterioration of underground plant parts.

Unless otherwise specified on this tabel, delay application until vegetation has emerged and reached the stages described for control of such vegetation under the "WEEDS CONTROLLED" section of this label. Unemerged plants arising from unattached underground thizomes or root stocks of perennials will not be affected by the herbicide and will continue to grow. For this reason, best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per acre within the recommended range when (1) weed growth is heavy or dense, or (2) weeds are growing in an undisturbed (noncultivated) area.

Do not treat weeds under your growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed, or cut, and have not been allowed to regrow to the recommended stage for treatment.

Rainfall or irrigation occurring within 6 hours after application may reduce effectiveness. Heavy rainfall or irrigation within 2 hours after application may wash the chemical off the foliage and a repeat treatment may be required.

This product does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide program, Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of minimumes of this product with herbicides or other materials that are not expressly recommended in this tabeling. Mixing this product with herbicides or other materials not recommended on this tabel may result in reduced performance.

For best results, spray coverage should be uniform and complete. On not spray weed foliage to the point of runoff,

DOMESTIC ANIMALS: This product is considered to be relatively nontoxic to dogs and other domestic animals; however, ingestion of this product or large amounts of freshly sprayed vegetation may result in temporary gastrointestinal irritation (vomiting, diarrhea, cofic, etc.), if such symptoms are observed, provide the animal with pleany of fluids to prevent debydration. Call a veterinarian it symptoms persist for more than 24 hours.

ATTENTION

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PRE-VENTINUURY TO DESIRABLE PLANTS AND CROPS.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of injury occurring from the use of this product is greatest when winds are gusty or in excess of 5 miles per hour or when other conditions, including lesser wind velocities, will allow spray drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift, AYDID APPLYING AT EXCESSIVE SPEED OR PRESSURE.

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NOTE: Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS

APPLY THESE SPRAY SOLUTIONS IN PROPERCY MAINTAINED AND CALIBRATED EQUIP-MENT CAPABLE OF DELIVERING DESIRED VOLUMES. OD NOT APPLY WHEN WIND OR DINER CONDITIONS FAVOR DRIFT. HAND-GUIL APPLICATIONS SHOULD BE PROPERLY DIRECTED TO AVOID SPRAYING DESIRABLE PLANTS. NOTE: REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

MIXING

This product mixes readily with water. Mix spray solutions of this product as follows: Fill the mixing or spray lank with the required amount of water. Add the recommended amount of this product (see the "DIRECTIONS FOR USE" and "WEEDS CONTROLLED" sections of this label) near the end of the folling process and mix well. Remove hose from Lank immediately after filling to avoid siphoning back into the carrier source. During mixing and application, fearing of the spray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, cerminate by-pass and return lines at the bottom of the tank and, if needed, use an approved anti-foam or delearning agent.

TANK MIXTURES

Always predetermine the compatibility of labeled tank mixtures of this product with water carrier by mixing small proportional quantities in advance.

Mix tabeled tank mixtures of this product with water as follows:

- 1. Place a 20 to 35 mesh screen or wetting basket over filling port.
- 2. Through the screen, fill the spray tank one-half full with water and start agitation.
- If a wettable powder is used, make a shurry with the water carrier, and add it SLOWLY through the screen into the tank. Continue agitation.
- If a flowable formulation is used, premis one part flowable with one part water. Add obtated mixture SLOWLY through the screen into the tank. Continue agitation.
- If an emulsifiable concentrate formulation is used, premit one part emulsifiable concentrate with two parts water. Add diluted mixture stowly through the screen into the tank, Continue agitation.
- Continue filling the spray tank with water and add the required amount of this product near the end of the filling process.
- Where noniomic surfactant is recommended, add this to the spray tank before completing the filling process.
- Add individual formulations to the spray tank as follows: wettable powder, flowable, emulsifiable concentrate, drift control additive, water soluble liquid followed by surfactant.

Maintain good agitation at all times until the contents of the tank are sprayed. If the spray mixture is allowed to sentle, thorough agitation is required to resuspend the mixture before spraying is resumed.

Keep by-bass line on or near bottom of lank to minimize foaming. Screen size in nozzle or hine strainers should be no finer than 50 mesh. Carefully select proper nozzle to avoid spraying a fine mist. For best results with conventional ground application equipment, use flat fan nozzles.

Clean sprayer and parts immediately after using this product by thoroughly flushing with water.

ADDITIVES.

SURFACTANTS

Monionic surfactants which are labeled for use with herbicides may be used. Do not reduce rates of this product when adding surfactant. When adding additional surfactant, use 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants which contain at least 70 percent active impedient or a 1 percent surfactant concentration (4 quarts per 100 gallons of spray solution) for those surfactants containing less than 70 percent active ingredient. Read and carefully observe surfactant cautionary statements and other information appearing on the surfactant label.

AMMONIUM SULFATE

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product, and this product plus 2,4-0. Banvel¹⁴ or residual herbicide tank mittures on annual and perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Low-quality ammonism sulfate may contain material that will not reactly dissolve, which could reself in polyging. To determine quality, perform a jar test by adding 1/3 cep of ammonium sulfate to 1 gallon of water and agitate for 1 minute. If undissolved sediment is observed, predissolve the ammonium sulfate in water and fitter prior to addition to the spray tank. If ammonium sulfate is added directly to the spray tank, add slowly with agitation. Adding too quickly may clog outlet line. Ensure that ammonium sulfate is completely dissolved in the spray tank before adding herbicines or surfactant. Thoroughly rinse the spray system with clean water after use to reduce corrosion.

NOTE: The use of ammorium sulfate as an additive does not preclude the need for additional surfactant. Do not use herbigide rates tower than recommended in this label.

COLORANTS OR DYES

Agriculturally-approved colorants or marking dies may be added to this product. Colorants or dies used in spray solutions of this product may reduce performance, especially at lower rates or dilutions. Use colorants or dies according to the manufacturer's recommendations.

APPLICATION EQUIPMENT AND TECHNIQUES

Do not apply this product through any type of irrigation system.

This product may be applied with the following application eculoment:

Aerial-Free Wing and Helicopter

Broadcast Spray

Controlled Droplet Applicator (CDA)—Hand-held or boom-mounted applicators which produce a spray consisting of a narrow range of droplet sizes.

Hand-Held and High-Volume Spray Equipment—Knapsack and backpack sprayers, pump-up pressure sprayers, handgoins, handwards, mistolowers*, lances and other hand-held and motorized spray equipment used to direct the spray onto weed foliage.

* This product is not registered in Catifornia or Arizona for use in mistblowers.

Selective equipment—Recirculating sprayers, shielded sprayers and wiper applicators. See the appropriate part of this section for specific instructions and rates of application.

AERIAL EQUIPMENT

Use the recommended rates of this herbicide in 3 to 15 gallons of water per acre unless otherwise specified on this label. See the "WEEDS CONTROLLED" section of this label for specific rates. Unless otherwise specified, do not exceed 1 quart per acre. Aerial applications of this product may be made in annual cropping conventional tillage systems, fallow and reduced tillage systems, and preharvest. Refer to the individual use area-sections of this label for recommended volumes and application rates. FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS.

Avoid direct application to any body of water.

AVOID DRUTT—DO NOT APPLY DURING INVERSION CONDITIONS, WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITION WHICH FAVORS DRUFT DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESTRABLE VEGETATION, APPROPRIATE BUTTER FORCE MUST BE MAINTAINED.

Coarse sprays are less likely to drift; therefore, do not use mozzles or nozzle configurations which dispense spray as line spray droptets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Drift control additives may be used. When a dirft control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label. Ensure uniform application—To avoid streaked, oneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. PROLONGED DUPD-SURE OF THIS PRODUCT TO UNCOLITED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE. The maintenance of an organic coating (paint), which meets aerospace specification MIL-C-33413, may prevent corrosion.

This product plus Dustin. Beavelin or 2.4-0 lank ministres may not be applied by air in

BROADCAST EQUIPMENT

For control of annual or perannial weeds listed on this label using broadcast equipment—Use the recommended rates of this product in 3 to 40 gailtons of water per acre as a broadcast spray unless otherwise specified on this label. See the "WEEDS CONTROLLED" section of this label for specific rates. As density of weeds increases, spray volume should be increased within the recommended range to ensure complete coverage. Carefully select proper notate to avoid spraying a fine mist. For best results with ground application equipment, use that fan notates, Check for even distribution of spray droplets.

CONTROLLED DROPLET APPLICATION (CDA)

The rate of this product applied per acre by vehicle-mounted CDA equipment must not be less than the amount recommended in this label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 3 to 15 gallons of water per acre.

For the control of labeled annual weeds with hand-held COA units, apply a 20 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 1.5 MPH (1 quart per acre). For the control of labeled perennial weeds, apply a 20 to 40 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 0.75 MPH (2 to 4 quarts per acre).

Controlled droplet application equipment produces a spray pattern which is not easily visible. Extreme care must be exercised to avoid spray or crift contacting the foliage or any other green tissue of desirable vegetation, as damage or destruction may result.

HAND-HELD and HIGH-VOLUME EQUIPMENT

the course sprays only.

Mix this product in clean water and apply to toliage of vegetation to be controlled. For applications made on a spray-to-wet basis, spray coverage should be uniform and complete. On not spray to the point of runoff.

For control of annual weeds listed on this tabel, apply a 0.5 percent solution of this product plus nonionic sentactant to weeds less than 6 inches in height or runner length. Apply prior to seedhead formation in grass or bud formation in broadleaf weeds. Allow three or more days before tiltage or mowing.

For annual weeds over 6 inches tail, or when not using additional surfactant, or unless otherwise specified, use a 1 percent solution. For best results, use a 2 percent solution on harder-to-control perennials, such as bermudagrass, dock, field bindweed, hemp dogbane, milkweed and Canada bisiste.

When using application methods which result in less than complete coverage, use a 5 percent solution for annual and perennial weeds and a 5 to 10 percent solution for woody brish and trees.

Prepare the desired volume of spray solution by mixing the amount of this product in water as shown in the following table:

Soray Solution

		ı	ا أن إمسم	្រូវបាលវាជាង		
Desired Volume	H%	1%	14%	2%	5%	10%
1 Gai	35 QZ	t Hs nat	2 02	2 11 01	64 oz	13 02
25 Gal	t ot	ł ę!	ib et	2 gt	5 qt	10 qt
100 Gal	2 q1	l gai	1% 24	2 gal	5 ga)	10 gal

For use in knapsack sprayers, it is suggested that the recommended amount of this product be mixed with water in a larger container. Fill sprayer with the mixed solution.

SELECTIVE EQUIPMENT

This product may be applied through a recirculating spray system, a shielded applicator, or a wiper applicator after dilution and thorough mixing with water to listed weeds growing in any noncrop site specified on this label and only when specifically recommended in cropoling systems.

A recursing spray system directs the spray solution onto weeds growing above desirable vegetation, while spray solution not intercepted by weeds is collected and returned to the spray tank for reuse.

A shielded applicator directs the herbicide solution onto weeds, while shielding desirable vegetation from the herbicide,

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution.

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AVOID CONTACT WITH DESIRABLE VEGETATION

Contact of the herbicide solution with the desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that the lowest spray stream or wiper contact point is at least 2 inches above the desirable vegetation. Droptels, mist, foam, or splatter of the nerbicide solution settling on desirable vegetation may result in discoloration, strinting, or destruction.

Applications made above the crops should be made when the weeds are a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense chumps, severe infestations or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatment may be necessary.

SHIELDED APPLICATORS

When applied as directed under conditions described for shielded applicators, this product will control those weeds listed in the "WEEDS CONTROLLED" section of this label.

Use the following equation to convert from a broadcast rate per acre to a band rate per acre.

Band width in inches Row width in inches	x	Herbicide Broadcast RATE per acre	ŧ	Herbicide Band RATE per acre
Band width		Broadcasi		Band
in inches	X	YO LUME of	₽	VOLUME
Row width		solutian		of salution
in inches		per acre		per acre

Use nozzles that provide uniform coverage within the treated area. Keep shields on shielded sprayers adjusted to protect desirable vegetation. EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT WITH DESIRABLE VEGETATION.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

WIPER APPLICATORS

Wiper applicators are devices that physically wipe appropriate amounts of this product directly onto the weed.

Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Operate this equipment at ground speeds no greater than 5 mph. Performance may be improved by reducing speed in areas of heavy weed infestations to ensure adequate wiper saturation. Better results may be obtained if 2 applications are made in opposite directions.

Avoid leakage or dripping onto desirable vegetation. Adjust height of applicator to ensure adequate contact with weeds. Keep wiping sortaces clean. Be aware that, on stoping ground, true herbicide solution may migrate, causing dripping on the lower end and drying of the wicks on the upper end of a wiper applicator.

Do not use wiper equipment when weeds are wet

Mix only the amount of solution to be used during a 1-day period, as reduced activity may result from use of leftover solutions. Clean wiper parts immediately after using this product by thoroughly flushing with water.

Do not add surfactant to the heroicide solution.

For Rope or Sponge Wick Applicators—Mix 1 gallon of this product in 2 gallons of water to prepare a 33 percent solution. Apply this solution to weeds bated in this "WIPER APPLICATORS" section.

For Porons-Plastic Applicators -- Solutions ranging from 33 to 100 percent of this product in water may be used in purous-plastic wiper applicators.

When applied as recommended under the conditions described for "WIPER APPLICATIONS", this product CONTROLS the following weeds:

ANNUAL GRASSES

Com

Руф, сополов

Zea mays

Secale cereate

Panicum, Texas

Shattercane

Panicum texanum

Sorghum bicolor

ANNUAL BROADLEAVES

Sichlepod

Cassia obtusifolia

Starbur, bristly

Acanthospermum hispidum

Spanishneedles

Ridens bipinnata

When applied as recommended under the conditions described for "WIPER APPLICA-TORS", this product SUPPRESSES the following weeds:

ANNUAL BROADLEAVES

Beggarweed, Florida Desmodium toduosum Ragweed, giant Ambrosia Infida

Doglennel

Sunflower

Eupatorium capilliflorium

Helianthus annuus

Pigweed, redroot Amaranthus retrollerus Thistle, mask Cardinus nutaris

Ragmend, common

Velvelleaf

Ambrosia artemisāfolia

Abutilan theophrasti

PERENNIAL GRASSES .

Rermudagrass

र्थ साम्राप्तान्त्र

Eynodon dacıyları

Sporobohrs poiretii

Guineagrass

Vaseygrass

Panicum maximum

Paspalum urvillei

)ohasoagrass Sorghum halepense

PERENNIAL BROADLEAVES

Dogbane, hemp

Hightsbade, silverleaf

Аросупит саплавівит

Solanum elaeagnilolium

Milkweed

Thistle, Canada

Ascelepias syriaca

Cirsium arvense

WEEDS CONTROLLED

This heroicide controls many annual and perennial grasses and broadleaf weeds.

ANNUAL WEEDS

- Apply to actively growing grass and broadleaf weeds.
- · Allow at least 3 days after treatment before tiltage.
- · For maximum agronomic benefit, apply when weeds are 6 inches or less in height,
- To prevent seed production, applications should be made prior to seedhead formation.
- · This product does not provide residual control; therefore, delay application until maximum weed emergence. Repeat breatments may be necessary to control later germinating weeds.

LOW-VOLUME BROADCAST APPLICATION (LOW-RATE TECHNOLOGY)

When applied as directed under the conditions described, this product will control the weeds based below when:

-). Water carries volumes of 3 to 10 gattons per acre for ground applications and 3 to 5 gallons per acre for aerial applications are recommended. (See the "AERIAL APPLICA-TION" section of this tabel for approved sites.)
- 2. A nonionic surfactant is added at 0.5 to 1 percent by total spray volume. Use 0.5 percent surfactant concentration when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration for those surfactants containing less than 70 percent active ingredient.

NOTE

. The addition of 2 percent dry ammenium sulfate by weight or 17 pounds per 100 galtons of water may increase the performance of this product on annual weeds. The improvement in performance may be apparent where environmental stress is a concem. Refer to the "MIDLING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this tabel,

- Do not tank-not with soil residual herbicides when using these rates unless otherwise specified.
- For weeds that have been mowed, grazed or cut, allow regrowth to occur prior to treatment
- Refer to the "TANK MIXTURES" portion of this section for control of additional broadlesf
 weeds.

WEED SPECIES	MAXIMUM HEIGHT/LENGTX	RATE PER ACRE* (Fluid Cunces)
Furtail Setaria spp.	. 17	8 qz.
Baruyardyrass Echinocidoa crus-galli Bluegrass, annual Paa annua	- Obe 4 - Obe 4	12 oz 16 oz. ¹) 24 oz. ¹)
Brome, downy** Bronns tectorum		. •
Mustard, blue Chorispora tenella		
Mustard, tansy Descurainia pinnata	and a second	
Mostard, tumble Sisymbrium altissimum		
Mustard, wild Sinapis arvensis	, ,	
Spurry, umbrella Holosteum umbellatum		
Barley Hardeum videare	iz 🛬	

Rya Secale cereale	ļ	[
Sandbor, field Centhrits spp		Arrange and the second
Shattercane Sorghum bicolor	1	Section in the section
Stinkgrass Eragnistis citanensis		
Wheat Iridicum aestiyum	18-	Company of the Compan
Morningstory	White to the Control	-1
ротоез гра	200	16 azr
Sickleped		a a 30 14
Cassia obtusifolia	J	
Bluegrass, bulbous		
Cheat Brumus secalinus	-	
Chickwood, common Stellaria media		The state of the s
Chickwest, mouseear		
Cerastium volgatum		
Lea mays		
Goldenser jointed		e Transaction
Aegikops cytindrica	ĺ	
Senecio vidente		Mark Dir
Henbit	- ASSESS CONTRACTOR	And the second s
Lamium amplexicaule		

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WEED SPECIES	MAXIMUM KEIGHT/LENGTH	RATE PER ACRET
Horseweed/Marestail Conyra canadensis	6 "	15 az.
Lambsquarters, common Chenopodium album	-	
Penmycress, field Fanweed INJaspi arvense		
Rocket, London Sisymbrium irio		
Ryegrass, Italian Lohum multiflorum		
Shepherdspurse Capsella bursa-pastoris		
Spurge, annual Euphorbia spp.		_]
Buttercup Ranunculus spp.	17"	16 az.
Cocklebur Kanthium strumanum		
Crabgrass Digitaria spp.		
Dwartdandelian Krigja cespitosa		
Fatseffax, smallseed Cametina microcarpa		
Foxtail, Carolina Alopecurus carolinianus		

Inhosongrass, seedling Sorghum halepense		
Dats, wild Avena fatua		
Panicum, fall Panicum dicholomiliorum		
Panicum Texas Panicum teranum	September 1	
Pigweed, redroot Amaranihus retroffezus		
Pigweed, smooth Amaranthus hybridus	andan -	
Witchgrass Panicum capillare	<u> </u>	
Sicklepod Cassia oblusifulia	3 to 4	24 oz.
Signalgrass, broadleal Brachiaria plafyphylla	4.	
Harstoweed/Marestail Conyza canadensis	7 to 12	· .
Lambsquarters, common Chenopodium album		
Spurgo, annual Euphorbia spp.		<u>.</u>
Rice, red Oryza sativa	4*	32 oz.
Teaweed Sida spinosa		
Sprangietop Leptochloa spp.	€.	1

WEED SPECIES	MAXIMUM HEIGHT/LENGIH	RATE PER ACRE* (Fluid Dunces)
Geranium, Carolina Geranium carolinianum	12"	32 az.
Goosegrass Eleusine indica		
Primosa, cotleat evening Genothera Laciniate		
Pusley, Florida Richardia scabra	<u> </u> 	
Sicklepod Cassia obtusifolia	5 to 12*	
Spanishneedles Bidens bipinnata	:	
Filanse Enodium spp	:71 2 5.85 °	48 oz
Sprangletop Leptochloa spp.		

Use these rates to control barnyardgrass in Alabama, Arkansas, Mississippi, Missouri, Louisiana and Texas for preplant treatments.

TANK MIXTURES

Roundup plus BANYEL plus NONIONIC SURFACTANT

Roundup plus 2,4-D plus NONIONIC SURFACTANT

DO NOT APPLY BANVEL OR 2,4-D TANK MOCTURES BY AIR IN CALIFORNIA

These tank mixtures are recommended for use in fallow and reduced titlage areas only. Follow use directions as given in the "LOW-VOLUME BROADCAST APPLICATION" section.

This product plus Banvel or 2.4-0 will control the annual grasses and broadleaf weeds listed for this product alone at the indicated heights (except 8 fluid ounces per acre applications), plus the following broadleaf weeds. For those weeds previously listed at 8 fluid ounces of this product alone per acre, use 12 fluid ounces in these tank minures.

NOTE: Refer to the specific product tabels for crop rotation restrictions and cautionary statements of all products used in tank mixtures. Some crop injury may occur if Banvel is applied within 45 days of planting. The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed species.

Apply 12 to 16 fluid ounces of this product plus 0.25 tb, a.i. of Battvel or 0.5 pound a.i. of 2.4-0, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre to control deniae populations of the following annual broadlest weeds when tess than the height indicated:

Cocklebur (12⁻) Xanthium strumatium Morningglory (6*) Ipomoea spp.

Kochia* (6*) Kochia scopania

Pigweed, redroot (12*)
Amaranthus retroflenus

Lambsquarters (17) · Chenopodium album

Pigweed, smooth (12*) Amaranthus hybridus

Lettuce, prickly (6°) Lactuca serriola

Thistle, Russian (121) Salsula kali

Marestall/Horseweed (6")

Conyra canadensis

*Controlled with Banvel tank mixture only.

^{*}For those rates less than 32 fluid ounces per acre, this product at rates up to 32 fluid ounces per acre may be used where heavy weed densities axist,

^{**}For control in no-60 systems, use 16 fluid ounces per acre.

Apply 16 fluid ounces of this product plus 0.5 pound a,i. of 2.4-0, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre to control the following annual broadleaf weeds when less than 5 inches in height.

Ваджеей, солинов Ambrosia artemisiifolia Smartweed, Pennsylvania Ромурации релаубуванским

Ragweed, giant

Velvetteaf

Ambrosia trifida

Abutiton theophrasti

HIGH-VOLUME BROADCAST APPLICATIONS

When applied as directed under the conditions described, this product will control the weeds listed below when water carrier volumes are 18 to 40 galloos per acre for ground andications

Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonlocks surfactant by total spray volume. Use 1 quart per acre if weeds are less than 6 inches (all and 1.5 quarts per acre if weeds are over 6 incres tall. If weeds have been moved, grazed, or cut, allow adequate time for new growth to reach recommended stages prior to treatment. These rates will also provide control of weeds listed in the "LOW-VOLUME BROADCAST APPLICATION" section.

WEED SPECIES

Balsamannie*

Momordica charantia

Panicum Panicum spo.

Bassia, fivehook

Ragweed, common

Bassia hyssopiolia

Ambrosia artemisidolia Ragweed, giant

Romin son Fiddleneck

Ambrosia triida

Ameinchia soo

Smartweed, Pennsylvania Polygonum pensylvanicum

Fleahane, hairy

Sowthistle, annual Sonchus deraceus

Conva benanensis Fleahane

19wollau2

Erigeron spp.

Helianthus annum

Aochia

Kochia scopana

Thistle, Russian

Salsola lati

Lettuce, prickly

Websetles!

Lactuca sempla

Abutilan theophrasti

*Apply with hand-held equipment only.

PERENNIAL WEEDS

Apply this product as follows to control or destroy most perential weeds:

NOTE: If weeds have been moved or tilled, do not treat until plants have resumed active growth and have reached the recommended stages.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Repeat treatments must be made prior to crop emergence.

The addition of 1 to 2 percent dry ammonium suitate by weight or 8.5 to 17 pounds per 100 gations of water may increase the performance of this product on perconiel weeds. The improvement in performance may be apparent where environmental stress is a concern, Refer to the "MOUNG, ADDITIVES and APPLICATION INSTRUCTIONS" section of

When applied as recommended ender the conditions described, this product WILL CON-THOL the following PEREMNIAL WEEDS:

Altatta

Medicago sativa

Bentyrass

Alligatorweed*

Agrostis spp.

Allemanthera

Bermudagrass Cymodon daciylon

piblioreroides Artichoka, Jerusetem

Bermodagrass, water (knoterass)

Helizathus tuberosus

Paspalum distichum

Babiagrass Paspalum notatum

Bindweed, field Comphulus arrensis

PERENNIAL WEEDS (continued)

Biolograss, Kentucky Poa spp.

Blueweed, Texas Helianthus cilians

Brackentern Pteridium aquilinum

Bromegrass, smooth Bromus inermis

Bursage, woollyteaf Fransena fomentosa

Canarygrass, reid Phalaris arundinacea

Cattail Iypha spp.

Clover, red Irifolium pratense

Clover, white Infolium repens

Cogongrass imperata cylindrica

Dallisgrass Paspalum dilatatum

Dandelion Tarazacum officinate

Dock, curty Rumes crispus

Pogbane, bemp Apocynum cannabinum

Fescues Festuca spp. Muhly, wirestem Muhlenbergia frondorisa

Mullein, common Verbascum thapsus

Napielyrass

Pennisetum purpureum

Nightshade, silverleal Solanum elaeagnifolium

Kursedge, purple, yellow Cyperus rotundus Cyperus esculentus

Occhardgrass Dactylis glomerata

Pampasgrass Cortaderia jubata

Paragrass Brachiaria mutica

Phragmites*
Phragmites sop.

Quackgrass Agropyron repens

Redvine* Brumnichia ovala

Reed, giarri Arundo danas Ryegrass, perennial

Lollum perenne
Smartweed, swamp
Polygonum coccineum

Fescue, tall

Festuca arundinacea Guineagrass

Pancium maximum Korsenettle

Solanum carobnense

Horseradista Armoracia msticana

Johnsongrass Sorghum halepense

Nikurugrass Penniserum clandestinum

Enapmeed Centaurea repens

Lantana Lantana camara

Milkweed Asclepias sop Spurge, leafy* Euphorbia esula

Sweet polato, wild*
Ipomoea pandurata

Thistle, Canada Cirsium arvense

Timothy Phleum pratense

Torpedograss* Particum repens

Trumpetoreeper*
Campsis ladicans
Vaseygrass

Paspatum urvillei Wheatgrass, western Agropyron smithii

*Partial Control

This product is not registered in California for use on water bermudagrass.

See "DIRECTIONS FOR USE" and "MOONG, ADDITIVES and APPLICATION UNSTRUCTIONS" sections of this label for labeled uses and specific application instructions.

Alfalfa—Apply 1 quart of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 galtons of water per acre. Make application after the last hay cutting in the fall. Allow attalfa to region to a height of 6 to 8 inches or more prior to treatment. Applications should be followed with deep billage at least 7 days after treatment, but before soil freeze-up.

Affigator-weed—Apply 4 quarts of this product per acre or apply a 1.5 percent solution with hand-held equipment to provide partial control. Apply when most of the plants are in bloom. Repeat applications will be required to maintain such control.

Bentgrass—For suppression in grass seed production areas. For ground applications only, apply 1.5 quarts of this product plus 0.5 to 1 percent nonlock senfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure entire crown area has resumed growth only to a fall application. Bentgrass shoots be actively growing and have at least 3 inches of growth. It flage prior to treatment should be avoided. Fillage 7 to 10 days after application is recommended for best results. Failure to use tillage after treatment may result to unacceptable control.

Bermudagrass—For control, apply 5 quarts of this product per acre. For partial control, apply 3 quarts per acre. Teat when bermudagrass is actively growing and seedheads are present. Retreatment may be necessary to maintain control. Allow 7 or more days after application before tillage.

Bermudagrass, water (knotgrass)—Apply 1.5 quarts of this product plus 0.5 to 1 percent nonlionic scription by total sovay volume in 5 to 10 gallons of water per acre. Apply when water bermudagrass is actively growing and 12 to 18 inches in tength. Allow 7 or more days before tilling, flusting or flooding the field.

Fall applications only—Apply 1 quart of this product plus 0.5 to 1 percent nonionic surtaction by total spray volume in 5 to 10 gallons of water per acre. Fallow fields should be tilled prior to application. Apply prior to frost on water bermudagrass that is actively growing and 12 to 18 inches in length. Allow 7 or coore days before titlage.

Bindweed, field—For control, apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts east of the Mississippi River. Apply when the weeds are actively growing and are at or beyond full bloom. Do not treat when weed is under drought stress as good soil moistore is necessary for active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Also for central, apply 7 quarts of this product plus 0.5 pound a.i. of Banval in 10 to 20 gallons of water per acre. At these rates, apply using ground application only.

The following tank mixtures with 2.4-D may be applied using aerial application equipment (except in California) in fallow and reduced tillage systems only.

For suppression on irrigated agricultural land, apply 1 to 2 quarts of this product plus 1 pound al. of 2.4-0 in 10 to 20 gallans of water per acre with ground equipment only. Applications should be made following harvest or in fall fallow ground when the pindweed is actively growing and the majority of runners are 12 inches or more in length. The use of at least one irrigation will promote active bindweed growth.

For suppression, apply 16 field nunces of this product plus 0.5 pound a.i. of 2.4-0 plus 0.5 to 1 percent ronionic surfactant by total surely volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Applications should be delayed until maximum emergence has occurred and when vines are between 6 to 18 inches in length.

In California only, apply 1 to 5 quarts of this product per acre. Actual rate needed for suppression or control will vary within this range depending on local conditions.

for suppression on imparted land where annual bilage is performed, apply 1 quart of this product plus 0,5 to 1 percent nonienic surfactant by total soray volume in 3 to 10 gations of water per acre. Apply to actively growing bindweed that has reached a length of 12 inches or greater. Allow maximum weed emergence and runner growth. Do not treat when weeds are under drought stress as good soil moisture is necessary for active growth. Allow 3 or more days after application before tillage.

Bluegrass, Kentucky / Bromegrass, schoolsh / Orchardgrass—Apoly 2 quarts of this product in 10 to 40 gallons of water per acre when the grasses are actively proving and most plants have reached boot-to-early seedhead stage of development. For partial control in pasture or hay crop renovation, apply 1 to 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing plants when most have reached 4 to 12 inches in height Allow 7 or more days after application before titlage.

Orchantgrass (sods going to no-tid corn)—Apply I to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to orchandgrass that is a minimum of 12 inches tail for spring applications and 6 inches tail for fall applications. Allow at least 3 days tottowing application before planting. A sequential application of abrazine will be necessary for optimum results.

Blueweed, Texas — Apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts per acre east of the Mississippi River. Apply when weed is archyely growing and is at or beyond full bloom. Do not treat when weed is under drought stress as gowth. New leaf development indicates active growth. New leaf development indicates active growth. For best results, apply in late summer or fath. Fall treatments must be applied before a killing frost, Allow 7 or more days after application before tiflage.

Brackenfern—Apply 3 to 4 quarts of this product per acre as a broadcast spray or as a title 1.5 percent solution with hand-held equipment. Apply to fully expanded fronts which are at least 18 inches ions.

Bursage, wooltheaf—For control, apply 2 quarts of this product plus 1 pint of Banvel per acre. For partial control, apply 1 quart of this product plus 1 pint of Banvel per acre. Add 0.5 to 1 percent nonionic surfaciant by total spray volume and apply in 3 to 20 gallons of water per acre. Apply when plants are producing new active growth which has been intilated by moisture for at least 2 weeks and when plants are at or beyond flowering.

Canarygrass, reed / Timothy / Wheatgrass, western—Apply 2 to 3 quarts of this product per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth. Allow 7 or more days after application before tillage

Cogongrass—Apply 3 to 5 quarts of this product plus 0.5 to 1 percent nonionic surfactant in 10 to 40 galloos of water per acre. Apply when Cogongrass is at least 18 inches tall and actively growing in late summer or fall. Allow 7 or more days after application before tillage or mowing. Due to uneven stages of growth and the dense nature of vegetation preventing good spray coverage, repeat treatments may be necessary to maintain control.

Dandelion / Dock, curty—Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before billage.

Also for control, apply 16 fluid ounces of this product plus 0.5 bound a.i. 2,4-0 plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre.

Dogbane, hemp—Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late oud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fail. Allow 7 or more days after application before tillage.

For suppression, apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-0 plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Delay applications until maximum emergence of dozbane has occurred.

Fescue, tall—Apply 3 quarts of this product in 10 to 40 gallons of water per acre to actively growing plants when most have reached boot-to-early seedhead stage of development.

Fall applications only—Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfaction by total spray volume in 3 to 10 gallons of water per acre. Apply to fescue in the fall when actively growing and plants have 6 to 12 inches of new growth. Allow 7 or more days after application before fillage. A sequential application of 1 pint per acre of this product plus nonionic surfactant will improve long-term control and control seedlings germinating after fall treatments or the following spring.

Guineagrass—Apply 3 quarts of this product per acre or use a 1 percent solution with hand-held equipment. Apply to actively growing guineagrass when most has reached at least the 7-leaf stage of growth. Ensure thorough coverage when using hand-held equipment. Allow 7 or more days after application before bildge.

Johnsongrass / Ryegrass, perennial—Apply 1 to 3 quarts of this product per acre. In annual cropping systems apply 1 to 2 quarts of this product per acre. Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gations of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre. In noncrop, or areas where annual tillage (no-tril) is not performed, apply 2 to 3 quarts of this product in 10 to 40 gallons of water per acre. For best results, apply to actively growing plants when most have reached the poor-to-head stage of growth or in the fall prior to frost. Allow 7 or more days after application before titlage. Do not tank-mix with residual herbicides when using the 1 quart per acre rate.

For boundown of Johnsongrass, apply 1 pint per acre plus 0.5 to 1 percent nonitoric surfactant in 3 to 10 gallons of water per acre before the plants reach a height of 12 inches. For this use, allow at least 3 days after treatment before blugge.

Spot treatment (partial control or suppression)—Apply a 1 percent solution of this product plus 0.5 to 1 percent nonlinuic sorfactant by total spray volume when Johnsongrass is 12 to 18 inches in height. Coverage should be uniform and complete.

Kikuryugrass—Apply 2 to 3 quarts of this product per acre. Spray when most kikuryugrass is at least 8 inchés in height (3 or 4-leaf stage of growth) and actively growing. Allow 3 or more days after application before tillage.

Knapweed / Horseradish—Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before triage.

Lantana—Apply this product as a 1 to 1.25 percent solution using hand-held equipment only. Apply to actively growing lantana at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth. Allow 7 or more days after application before bilage.

Milhweed, common—Apply 3 quarts of this product per acre. Apply when actively growing and most of the milkweed has reached the late bud to flower stage of growth. Following small grain harvest or moving, allow milkweed to regrow to a malure stage orion to treatment. Allow 7 or more days after application before tiflage.

Multip, wirestem—Apply 1 to 2 quarts of this product per acre. Use 1 quart of this product plus 0.5 to 1 percent nonitaric surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre or in pasture, sod, or noncrop areas. Spray when the wirestem multip is 8 inches or more in height and actively growing. On not till between harvest and falt applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage. This product will not provide residual control of wirestem multip from seeds which germinate after application of this product. Do not tank mix with residual herbicides when using the 1 quart per acre rate.

Hightshade, silverteat—For control, apply 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Applications should be made when at least 60 percent of the plants have berries. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before fillage. Do not beat when weed is under drought stress as good soil moisture is necessary for active growth.

Nutsedge, purple, yellow—Apply 3 quarts of this product per acre as a broadcast spray, or apply a 1 to 2 percent solution from hand-held equipment to control existing nutsedge plants and immature nutlets attached to breated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tipes. Notlets which have not germinated will not be controlled and may germinate following breatment. Repeat treatments will be required for long-term control of ungerminated tubers.

Sequences applications of 1 to 2 quarts of this product plus 0.5 to 1 percent minionic surtactant by lotal spray volume in 3 to 10 gallons of water per acre will provide control. Make applications when a majority of the plants are in the 3 to 5-leaf stage (less than 6 inches tat). Repeat this application, as necessary, when newly emerging plants reach the 3 to 5-leaf stage. Subsequent applications will be necessary tor long-term control.

For suppression to partial control of existing plants, apply 1 pint to 2 quarts of this product per acre, plus 0.5 to 1 percent nonionic surfactant in 3 to 40 gallons of water per acre. Treat when plants have 3 to 5 teaves and most are less than 6 inches tall. Repeat beatments will be required to control subsequent emerging plants or regrowth of existing plants. Wait 7 days after treatment before titlage or moving.

Pampasgrass—Apply this product as a 1.5 to 7 percent solution using hand-held equipment. Apply to plants that are actively growing at or beyond the boot stage of growth, thorough coverage is necessary for best control.

Phragmites—For partial control of phragmites in Flonda and the counties of other states bordering the Golf of Mexico, apply 5 quarts per acre as a broadcast spray or apply a 2 percent solution from hand-held equipment. In other areas of the U.S., apply 3 quarts per acre as a broadcast spray or apply a 1 percent solution from hand-held equipment for partial control. For best results, treat during late summer or fall months pr when plants are actively growing and in full bloom. Treatment before or after this stage may feed to reduced control. Due to the dense nature of the vegetation, which may prevent good spray coverage or uneven stages of growth, repeal treatments may be necessary to maintain control. Ysual control symptoms will be slow to develop

Quackgrass—In Annual Cropping Systems, or in Pastures and Sods Followed by Deep Tillage: Apply 1 to 2 quarts of this product per acre. For the 1 quart rate, apply 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. For the 2 quart rate, apply in 10 to 40 gallons of water per acre. Do not tank mix with residual herbicides when using the 1 quart rate. Spray when quarkgrass is 6 to 8 inches in height and actively growing. Do not till between harvest and fall applications or in fall or spring prior to spring application. Allow 3 or more days after application before bidage. In pastures or sods, for best results use a moldboard plow.

Quackgrass—Pasture or Sod or Other Noncrop Areas Where Deep Tillage is Not Planned Following Application: Apply 2 to 3 quants in 10 to 40 gallons of water per acre. Spray when the quackgrass is greater than 8 inches tall and actively growing. Do not till between harvest and fall application or in fall or spring prior to soring application. Allow 3 or more days after application before tiltage.

Redvine—For suppression, apply 24 fluid ounces of this product per acre at each of two applications 7 to 14 days apart or a single application of 2 quarts per acre. Apply recommended rates in 5 to 10 gallons of water per acre plus 0.5 to 1 percent nonionic surfactant by total volume. Apply to actively growing plants in the September or early October.

which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing trost.

Reed, giant-For control of giant reed, apply a 2 percent solution of this product when plants are actively growing. Best results are obtained when applications are made in fate

Smartweed, swamp---Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fluid nunces of this product dos 0.5 pound active ingredient of 2,4-0 plus 0.5 to 1 percent nonionic surfactam by total volume in 3 to 10 gallons of water ger acre in the late summer or fall. Apply when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillaæ

Spurge, leafy-for suppression, apply 16 fluid nunces of this product ples 0.5 pound active ingredient 2.4-0 plus 0.5 to 1 percent nonignic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing. If mowing has occurred prior to treatment, apply when most of the plants are 12 inches tall. Allow 7 or more days after application before tiffage.

Sweet Potato, wild-Apply this product as a 2 percent solution using hand-held equipment. Apply to actively growing weeds that are at or beyond the bloom stage of growth. Repeat applications will be required. Allow the plant to reach the recommended stage of growth before retreatment. Allow 7 or more days before tiltage.

Thistle, Canada—Apply 2 to 3 quarts of this product per acre. Apply to actively growing thistles when most are at or beyond the bud stage of growth. After harvest, mowing or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to the application of this product. Fall trealments must be applied before a killing frost. Allow 3 or more days after application before tillage,

For suppression of Canada thistie, apply 1 quart per acre of this product, or 1 pint of this product plus 0.5 pound a.i. 2,4-D per acre, plus 0.5 to 1 percent nonionic surfactant by total scray volume in 3 to 10 gallons of water per acre in the late summer or fall after harvest, mowing or bilage. Allow rosette regrowth to a minimum of 6 inches in diameter before treating. Applications can be made as long as leaves are still green and plants are actively growing at the time of application. Allow 3 or more days after application before titlage.

Torpedograss—Apply 4 to 5 quarts of this product per acre to provide partial control of torpedograss. Apply to actively growing torpedograss when most plants are at or beyond the seedhead stage of growth. Repeat applications will be required to maintain control. Fall treatments must be applied before trost. Allow 7 or more days after application before tillage.

Trumpetcreeper—For Control, apply 2 quarts of this product per acre in 5 to 10 gaillons of water per acre. Apply to actively growing plants in late September or October, which are at least 18 inches tall and have been growing 45 to 60 days since the last tiltage operation. Make applications at least 1 week before a fulling frost.

Other perannials listed on this label—Apply 3 to 5 quarts of this product per acre. Apply when actively growing and most have reached early head or early bud stage of growth. Allow 7 or more days after application before titage.

WOODY BRUSH AND TREES

When applied as recommended under the conditions described, this product CONTROLS or PARTIALLY CONTROLS the following woody brush, plants and treas-

TOUR	
-	
44	

Alnus spp.

Broom:

Ash*

Freach Cytisus

Frazinus spp.

monspessulanus

Aspen, quaking Populus tremuloides

Scotch Cytisus scoparius

Bearmat (Bearclover)

Buckwheat, California* Enogonum lasciculatum

Chamaebana foliolosa Birch

Cascara*

Berula soo.

Rhamnus purshiana

Blackberry

Calsclaw* Acacia greggi

Рибих гар

Ceanothus*

Ceanothus spp.

WOODY BRUSH AND TREES (continued)

Chamise

Adenostoma fasciculatum

Cherry:

Ritter Prunus emarginala

Black

Pronus serotina

Pin Prunus pensylvanica

Coyate brush

Baccharis consanguinea €reeper, Virginia*

Parthenocussus quinquelalia

Dewberry Rubus trivialis

Etderberry Sambucus spp.

Elm*

Ulmus spp.

Eucalypius Eucalyptus spp.

Kasardia*

Haplopappus squamosus

Hawthorn Crataegus spp.

Hazet

Corylus SPP.

Honeysuchia

Lonicera spp.

Persimmon*

Оковругов врр.

Paison lyy Rhus radicans

Poison Cak

Rhus toricodenaran

Poptar, yellow* Lisiodendron tulipifera

Raspberry

Rubus Spp.

Rose, multiflora Rosa multiflora

Russian-olive*** Elaeagnus angustilolia

Sage, black Salvia metbiera

Sagebrush, California Artemisia caltiornica

Salmonberry Repus spectabilis

Sassafras

Sassaíras aibidum

Sourmood

Oxydendrum arboteum

Kudzu

Pueraria tobata

Locust, black*

Robinia pseudoacacia

Madrone

Arbutus menziesii

Manzanita

Arctostaphylos spp.

Maple: Red**

> Acer rubrym Sugar

Acer saccharum

Yine*

Acer circinatum

Monkey Flower* Mimulus gutratus

Oak:

Black*

Opercus velutina Northern Pin

Quercus palustris Post

Overcus stellata

Red

Quercus rubra Southern Red Ouercus falcata

White*

Quercus alba

*Partial control

**See below for control or partial control instructions.

* This product is not registered in California for use on Russian-otive.

Sumac:

Paison*

Rhos verno

Smooth* Rhus glabra

Winged*

Rhus copallina

Zweeteum

Liquidambar styraciffua

Swordfern*

Polystichum munitum

Tailoutree, Chinese

Sapium sebiferum

Tan Oak

Lithocarpus densiliorus

Thimbleberry Rubus pamillorus

Tobacco, tree*

Nicotiana glauca

Trumpetcreeper Campsis radicans

Willow

Salis spp.



NOTE: If brush has been moved or filled or trees have been cut, do not treat until regrowth has reached the recommended stages of growth.

Apply this product when plants are actively growing and, unless otherwise directed, after full leaf expansion. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in late summer or tall after fruit formation.

In arid areas, best results are obtained when application is made in the spring to early summer when brush species are at high moisture content and are flowering.

Ensure thorough coverage when using hand-held equipment. Symptoms may not appear prior to frost or senescence with fail treatments.

Allow 7 or more days after application before tillage, moving or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undestrable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if tall treatments are made laboring a frost.

See "DIRECTIONS FOR USE", and "MOUNG, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this tabel for labeled use's and specific application instructions.

Apply this product as follows to control or partially control the following woody brush and trees

Alder / Dewberry / Honeysuckle / Post Oak / Raspberry—For control, apply 3 to 4 quarts per acre of this product as a broadcast speay or as a 1 to 1.5 percent solution with hand-held equipment.

Aspen, quaking / Cherry: bitter, black, pin / Hawthorn / Oak, southers red / Sweetgum / Trumpetcreeper—For control, apply 2 to 3 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment.

Ricch / Elderberry / Hazel / Salmonberry / Thimbleberry—For control, apply 2 quarts per acre of this product as a broadcast spray or as a 1 percent solution with hand-held equipment.

Blackberry—For control, apply 3 to 4 quarts per acre of this product as a broadcast spray, or 1 to 1.5 percent solution with hand-held equipment. Make application after plants have reached full leaf majurity. Best results are obtained when applications are made in late summer or fall. After berries have set or dropped in late fall, blackberry can

be controlled by applying a 3/4 percent solution of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume with hand-held equipment. For control of blackberries after leaf drop and until killing frost or as long as stems are green, apply 3 to 4 quarts of this product in 10 to 40 gallons of water per acre.

Broom: French, Scotch—For control, apply a 1.5 to 2 percent solution with hand-held equipment

Buckerheat, California / Nasardia / Monkey Flower / Johacco, tree—for parial combol of trese species, apply a 1 to 2 percent solution of this product as a toker surey with hand-held economical. Thorough coverage of foliage is necessary for best results.

Cataclaw—For partial control, apply as a 1 to 1.5 percent solution with hand-held equipment.

Coyote Brosh—For control, apply a 1.5 to 2 percent satution with hand-held equipment when at least 50 percent of the new leaves are fully developed.

Eucatyphos—For compil of eucatyphos response, apply a 2 percent solution of this producl with hand-held equipment when responsts are 6 to 12 feet tall. Ensure complete coverage. Apply when plants are growing actively. Avoid application to drought-stressed plants.

Rudzu—For control, apply a quarts of this product per acre as a broadcast spray or as a general solution with hand-held equipment. Repeat applications will be required to

Madrone response—for suppression or partial control, apply a 2 percent solution of this product to respirals less than 3 to 6 feet tall. Best results are obtained with

Maple, red—for control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new feaves are hilly developed. For partial control, apply 2 to 4 quans of this product per acre as a broadcast spray.

Maple, sugar / Oak, northern pin / Oak, red.—for control, apply as a 1 to 1.5 percent solution with hand-held equipment when all least 50 percent of the new leaves are fully developed.

Poison by / Poison Oak—For control, apply 4 to 5 quarts of this product per acre as a broadcast spray or as a 2 percent solution with hand-held equipment. Repeat applications may be required to maintain control. Fall treatments must be applied before leaves lose green color.

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Rose, multiflora—for control, apply 2 quarts of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment. Treatments should be madeprior to feat deterioration by leaf-feeding insects.

Sage, black / Sagebrush, California / Chamise / Tallowtree, Chinese—For control of these species, apply a 1 percent solution of this product as a foliar spray with handheld equipment. Thorough coverage of foliage is necessary for pest results.

Tan dak respress.—For suppression or partial control, apply a 2 percent solution of this product to respress less than 3 to 6 feet tail. Bost results are obtained with tail applications

Willow — For control, apply 3 quarts of this product per acre as a proadcast spray or as a 1 percent solution with hand-held equipment.

Other Woody Brush and Trees listed on this label—for partial control, apply 2 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 2 percent solution with hand-helo equipment.

NONCROP USES

See "GEHERAL INFORMATION" and "MOUNG, ADDITIVES and APPLICATION INSTRUC-TIONS" sections of this label for essential product performance information and the following "NONCROP" sections for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE. GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE FURG-GRASSES, TREES, SHRUBS OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESIRAUCHON MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seeds.

This product does not provide residual weed control. For subsequent weed control, follow a label-approved herbicide program.

Read and carefully observe the cautionary statements and all other information appearing on the tabels of all herbicides used.

INDUSTRIAL, RECREATIONAL AND PUBLIC AREAS

When applied as directed for "NONCROP BSES", under conditions described, this product controls annual and perennial weeds listed on this tabel greeing in areas such as aircosts, ditte banks, dry clitches, dry canals, tencerows, golf courses, highways, industrial clant sites, lumber yards, parking areas, parks, detroleum tank farms and pumping installations, railroads, roadsides, schools, storage areas, utility substations, other public areas and similar industrial or mortrop areas.

For specific rates of application and instructions for control of various acqual and perecipal weeds and woody drush and pees, see the "WEEOS COMPROLLED" section of this tabel

This product may be applied with recirculating sorayers, shielded applicators, or wiper applicators in any noncrop size specified on this latel. See the Selective Equipment part of "APPLI-CATION EQUIPMENT and TECHNIQUES" section of this label for information on proper use and calibration of this equipment.

TANK MIXTURES FOR INDUSTRIAL SITES

Roundup plus OUST™

Use on industrial sites including airports, industrial plants, lumberyards, petroleum tank farms, pumping stations, proebnes, railroads, roadsides, storage areas or other similar sites where bare ground is desired.

When applied as directed for "NONCROP USES" under the conditions described, this product plus Dust provides control of annual weeks fisted in the "WEEDS CONTROLLED" section of the label for this product and Ovst, and control or partial control of the perential weeds listed below.

Apply 1 to 2 quarts of this product with 2 to 4 ownces of Oust in 10 to 40 gallons of spray solution per acre as a broadcast spray to actively growing weeds.

When applied by air, use the recommended rates in 5 to 15 gallons of spray solution per

This product plus Oust tank mixtures may not be applied by air in California

For control of annual weeds, use the lower rates of these products

For control of the listed perennial weeds, use the higher rates of both products. For partial control, use the lower rates.

Bahiagrass

Paspalum notatum

* zzstandende

Sorghum halepense

Bermudagrass* Cynodon daciylon Poorjoe** Diodia teres

Broomsedge Andropogon virginicus Duackerass Авторутоп герепя

Dock, curty

Trumpeterseper*

Rumes crispus

Campsis radicans

Dogfennel Eupatorium capillilorium Yaseyerass

Fescue Iali

Paspalum umillei

Vervain, bive

Festuca arundinacea

Verbena hastata

Suppression at the higher rates only.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

TANK MIXTURES NONCROP SITES

When applied as a tank mixture, this product provides control of the emerged annual weeds and partial control of the emerged perennial weeds listed in this label. When applied as a tank mixture, the following residual herbicides will provide preemergence control of the weeds listed in the individual product labels.

Roundup plus DIURON Roundup plus KROVAR™ I Roundup plus KROVAR II Roundup plus RONSTARIM 50WP Roundup plus SIMAZINE, PRINCEPIM CALIBERIM 90

Roundup plus SIMAZINE 4L Roundup plus SIMAZINE 80W Roundup plus SURFLAN™ 75W Roundup plus SURFLAN AS

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution. See the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label before preparing these tank mixtures.

Read and carefully observe the label claims, cautionary statements, recommended use rates and all other information on the labels of all products used in these lank mixtures. Use according to the most restrictive label directions for each product in the MUTUS P.

CONTROL OF EMERGED WEEDS

Annual Weeds---Apply 1 quart per acre of this product in these tank mixtures when weeds are less than 6 inches tall and 1.5 quarts per acre when weeds are more than 6 inches tall.

Perennial Weeds---For partial control of perennial weeds using these tank mixtures, apply 2 to 5 quarts per acre of this product. Follow the recommendations in the "WEEDS CONTROLLED" section of this label for stage of growth and rate of application for specific perennial weeds.

PREEMERGENCE WEED CONTROL

For preemergence weed control, refer to the individual product labels for specific noncrop sites, rates, carrier volumes and precautionary-statements.

Mix only the quamury of spray solution which can be used during the same day. Do not allow these tank mixtures to stand overnight as this may result in reduced weed control. APPLY THESE TANK MIXTURES THROUGH CONVENTIONAL BROADCAST EQUIPMENT ONLY

FARMSTEAD WEED CONTROL

When applied as directed for "NONCROP USES", under conditions described, this product controls undestrable vegetation tisted on this label around farmstead building foundations. along and in fences, shelterbells and for general conselective larmstead weed control.

Control at the lower rates.

For specific rates of application and instructions for control of various annual and perenrial weeds, see the "WEEDS CONTROLLED" section of this label.

FARM DITCHES

This product will suppress perennial grasses along farm ditches. Apply this product at a rate of 6 to 8 fluid dunces per acre, the 8 fluid dunces per acre when treating tall tocarse) fescue, fine fescue, orchardgrass or quackgrass covers. For best suppression of these species, and ammonium sulfate at a rate of 1.7 pounds per 10 gallons of spray solution. Use 6 fluid ounces per acre without ammonium sulfate when treating Kentucky bluegrass.

Apply treatments in 10 to 20 gallons of spray solution per acre to actively growing perennial grass covers. For best spray distribution and coverage, use that tan mozzles.

Add a senionic surfactant at a rate of 0.5 percent of the spray solution.

Where broadleaf weed control or suppression is desired, tank mix this product with an appropriate, labeled broadleaf weed herbicide.

CONSERVATION RESERVE PROGRAM (CRP ACRES)

This product can be used to control endestrable vegetation when rotating out of CRP acres or to suppress commutive growth and seed production of undestrable vegetation in CRP acres.

For specific rates of application for various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

CRP applications may be made with wider applicators or conventional spray equipment.

For selective applications with broadcast spray equipment, apply 12 to 16 ounces per acre of this product in early spring before desirable CRP grasses, such as crested and tall wheatgrass, break domnancy and initiate green growth. Late fall applications can be made after desirable perennial grasses have reached dormancy. Some stunting of CRP perennial grasses will occur if applications are made when plants are not domnant.

HABITAT MANAGEMENT

This product is recommended for the restoration and/or maintenance of native natitats and in wildlife management areas. Apply as recommended in the "NONCROP USES" section of this tabel.

Nabitat Restoration and Maintenance—When applied as directed, exotic and other undestrable vegetation may be controlled in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broadspectrum vegetation control requirements in babitat management areas. Spot beatments can be made to selectively remove unwanted plants for habitat management areas and enhancement. For spot treatments, care should be exercised to keep spray off of desirable plants.

Wildfife Food Plots — This product may be used as a site preparation breatment prior to planting wildfife food plots. Any wildfife food species may be planted after applying this product, or native species may be allowed to repopulate the area. If billage is needed to prepare a seedbed, wait 7 days after applying this product before tilling.

ORNAMENTALS AND CHRISTMAS TREES

THIS PRODUCT IS NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY BY ORNAMENTALS AND CHRISTMAS TREES.

NOTE: Desirable plants may be protected from the spray solution by using shields or coverings made of cardboard or other impermeable material.

When applied as instructed for the conditions described for "NONCROP USES", this product controls undesirable vegetation bisled on this tabel prior to planting, within and around greenhouses and shadehouses, and as a postdirected spray around established oma-

For specific rates of application and instructions for control of various annual and perennial weeds, see the "Weeds Controlled" section of this label.

Where repeat applications are necessary, do not except 10.6 quarts of this product per acceptor year.

Site Preparation—Following preplant applications of this product, any ornamental or

Christmas tree species may be planted. Precautions should be taken to protect nontarget plants during site preparation applications.

Greenhouse/Shadehouse Use—This product may be used to control weeds tisted on this label which are growing in greenhouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

Postdirected Spray—Use as a postdirected spray around established woody ornamental species or Christinas trees such as those listed below. Care must be exercised to avoid contact of spray, drift or mist with foliage of or green bank of established ornamental species.

Arborvitae Thuja spp. Lilac Syringa spp.

Azalea Rhododendron spp. Magnolia Magnolia spp.

Burus spp.

Maple Acer spp.

Crabapple Malus spp. Oak Quercus spp.

Euonymus Еиопутииз spp. Privet .

Fix
Abies spp.
Pseudorsuga spp.

Ligustrum spp. Pine

Pseudorsuga spp. Jojoba Pinus spp. Spruce

Simmondsia chinensis

Spruce Picea sop.

Simmonasia cilumensis Hollies Yew Taxus sop.

llex spp.

CUT STUMP TREATMENTS

Woody vegetation may be controlled by treating freshly cut stumps of trees and resprouts with this product. Apply this groduct using suitable equipment to ensure coverage of the entire cambium. Cut vegetation close to the soil surface. Apply a 50 to 100 percent solution of this product to the freshly cut surface immediately after cutting. Delays in application may result in reduced performance. For best results, applications should be made during periods of active growth and full leaf expansion.

When used according to directions for cut stump application, this product will CONTROL, PARTIALLY CONTROL or SUPPRESS many types of woody brush and tree species, some of which are tisted below:

Alder Ainus spp. Sattcedar Tamarisk spp.

Eucalyptus

Eucalyptus spp.

Sweetgum Liquidambar styracillua

Madrone

Tan Oak

Arbutus menziesii

Lithocarpus densiflorus

Oak Ouercus spp Willow Salir spp.

Reed, giam Arundo donas

INJECTION AND FRILL APPLICATIONS

Woody vegetation may be controlled by injection or full application of this product. Apply this product using suitable equipment which must penetrate into the firing tissue. Apply the equivalent of 1 ml of this product per each 2 to 3 inches of truth diameter (OBH), This is best achieved by applying a 50 to 100 percent concentration of this material either to a continuous full around the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying diluted material to a continuous full or more closely spaced cultings. Avoid application techniques that allow nunoff to occur from full or cut areas in species that esude sap freely after fulls or cutting, in species such as this, make full or cut at an oblique angle so as to produce a cupping effect and use undiluted material. For best results, application should be made during periods of active growth and after full leaf expansion.

This treatment WILL CONTROL the following woody species:

Oak

Sweetgum

Quercus sop.

Liquidambar styraciflua

Poplar Populus spp. Sycamore

Platanus occidentalis

This treatment WILL SUPPRESS the following woody species:

Black gum

Hickory

Myssa sylvatica

Carya spp Maole red

Dogwood

Counts son

Асет гиблит

TURFGRASSES AND GRASSES FOR SEED PRODUCTION

PREPLANT AND RENOVATION

When applied as directed for "NONCROP USES", under conditions described, this product controls most existing vegetation prior to the planting or renovation of either torigrasses or grass seed production areas.

For specific rates of application and instructions for control of various annual and perendial weeds, and woody brush and trees, see the "WEEDS CONTROLLED" section of this label.

For maximum control of existing vegetation, delay planting to determine if any regurath from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regreath must be attained prior to application. For warm-season grasses, such as bermudagrass, summer or fall applications provide best control.

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 3 days after application to allow proper translocation into underground plant parts.

TURFGRASSES

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing, weeds at the stages of growth listed in the "WEEDS CONTROLLED" section of this label.

Where existing vegetation is growing under mowed turigrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the soray.

Desirable turigrasses may be planted following the above procedures.

GRASSES FOR SEED PRODUCTION

Apply this product to actively growing weeds at the stages of growth recommended in the "WEEDS CONTROLLED" section of this label prior to planting or renovation of furf or for age grass areas grown for seed production.

DD NOT feed or graze treated areas within 8 weeks after application.

ANNUAL WEED CONTROL IN DORMANT BERMUDAGRASS AND BAHIAGRASS TURF

When applied as directed for "NONCROP USES" under the conditions described, this product will provide control or suppression of many winter annual weeds and tall fascue for effective release of dormant bermudagrass and bahiagrass turf. Refer to the rate table for Roundup atone under the FLLEASE OF BERMUDAGRASS and BAHIAGRASS" section of this label for recommended rates and volumes on the species to be suppressed or controlled. Treat only when turf is dormant and prior to spring greenup. Spot treatments or broadcast applications of this product in excess of 15 fluid ounces per acre may result in injury or delayed greenup in highly maintained turfgrass areas; i.e., golf courses, tawns, etc. DO NOT APPLY TANK MOTURES of this product plus Qust in highly maintained turfgrass areas.

RELEASE OF BERMUDAGRASS OR BAHIAGRASS

NOTE: Use only in areas where bermudagrass or bahiagrass are desirable ground covers and where some temporary injury or discoloration can be tolerated. Use tank mixtures of this product plus Dust only on railroads, highways, utility plant sites, or other right-of-way areas.

When applied as directed for "NONCROP USES" under the conditions described, this product will provide control or suppression of many winter annual weeds and tall lescue for effective release of dormant bermudagrass or bahiagrass. This product may be tank-mixed with Dust as recommended for residual control. Make applications to dormant

bermudagrass or bahiagrass. Tank mixtures of this product plus Oust may defay greenup. In avoid delays in greenup and minimize injury, do not add more than 1 ounce per acre of Oust on bermudagrass or more than 0.5 ounce per acre on bahiagrass, or treat when these grasses are in a semi-dormant condition.

for best results on winter annuals, treat when plants are in an early growth stage (below 6 inches in height) after most have germinated. For best results on tall fescue, treat when tescue is in or beyond the 4 to 6-leaf stage.

WEEDS CONTROLLED

Rate recommendations for control or suppression of winter annuals and tall feacue are listed below.

Apply the recommended rates of this product alone or as a tank motion in 10 to 25 galions of water, plus 0.5 to 1 percent nonionic surfactant by total soray volume per acre.

For the best recommendation for the mixture of weeds within your geographic area, contact your Morsanto sales representative.

WEEDS CONTROLLED OR SUPPRESSED WITH Roundup ALONE*

Roundup® FLUID OWACRÈ

NOTE: C = Control

S = Suppression

MEED SPECIES .		- 12	36	- 24	. 32	54
Barley, little Hordeum pusitium	2	С	С	С	C	С
Bedstram, catchweed Gallum aparine	S	. C	С	C	C	·¢
Bluegrass, annual Poa annua	\$	С	·¢	£	С	C
Charvil Chaerophyllum tainturieri	S	c	£	ε	C	С
Chickweed, common Stellana media	2	С	c	. C	C	С
Clover, crimson	-	\$ 3.4.	S	. c	. c :	
InfoGum incamatum	4				;	•
Clover, large hop	•	. \$	S	C	С	C
infolium campestre						
Festuca arundmaceae	•	•	•	•	5	" S
Geranium, Catolina Geranium catolinianum	•	•	S	S	С	C
Hentid Lamium ampleideada		Š	Ĉ.	. c ?	c.	Ċ.
Ryegrass, Italian Lolium multiflorum	•	•	S	c	С	C
Speedwell, curs	s .	Č.	*-c <	િંદ સ	Ċ	Ċ
Yelch, common	•	•	\$	ε	C	C

^{*} These rates apply only to sites where an established competitive turf is present.

WEEDS CONTROLLED OR SUPPRESSED WITH Roundup PLUS OUST*

NOTE: $\hat{C} = \hat{C}$ ontrol

Vicia sativa

S = Suppression

,,		Roundup# + CUST							
	Roundup* ,					-			_
	(FL 02/A)	8	12	12	18	15	12	18	
WEED	+	+	+	+	+	+	+	+	
SPECIES	(A/SO) TZUO	Ж	У.	y ;	1/2	Ж	1	ı	
Sarley, Little		C.	C	С	С	С	С	С	
Ногдеит риздішт					1 -:	S (.)			٠.
Bedstraw, catchweed Eatium aparine	I	С	C	C	C	С	С	С	

53

			.R	muqi	up" ÷	- 003	31	
	Roundupe: (FL, OZ/A)	8	12	12	15	16	12	16
WEED Species	+ Oust (Oz/A)	¥ +	÷	÷ H	÷ %	÷ 16	÷	+ 1
Bluegrass, annual Poa annua		5	¢	С	С	C	C	С
Chervil Chaerophytlum tainturieri		C	C	C	С	C	С	C
Chickweed, common <i>Stellaria media</i>		S	C	C	С	С	С	C
Clover, crimson Tritolium incarnatum		\$	S	S	\$	C	C	C
Clover, Large hop Trifolium campestre		•	•	\$	S	S	C	С
Fescue, tall Festuca arundinaceae	•	•	•	•	•	•	5	\$
Geranium, Carolina Geranium carolinianum		•	S	S	£	C	C	C
Henbit <i>Lamium amplesicaule</i>		•	S	Ç	C	С	C	C
Ryegrass, Italian Lolium multiflorum		•	\$	\$	C	C	C	C
Speedwell, corn Veronica anvensis		S	C	C	С	С	C	C
Vetch, common Vicia sativa	* : .	C	C	ĵ.	C	C	C	С

These rates or mixtures of rates apply only to sites where an established competitive turl is present.

RELEASE OF ACTIVELY GROWING BERMUDAGRASS

When applied as directed, this product will aid in the release of bermudagrass by providing control of annual species listed in the "WEEDS CONTROLLED" section of this and the Oust label, and suppression or partial control of certain perennial weeds.

For control or suppression of those annual species fisted on this label, use 1 to 3 pints of this product as a broadcast spray in 10 to 25 gallions of spray solution per acre. Use the lower rate when treating annual weeds below 6 inches in height (or length of runner in annual vines). Use the higher rate as weeds increase in size or as they approach flower or seedhead formation.

Use the higher rate of this product for partial control of the following perennial species. Use the lower rates for suppression of growth. For best results, see the "Weeds Controlled" section of this label for proper stage of growth.

Bahiagrass

Johnsong/aga*

Paspalum notatum

Sorghum halepense

Bluestem, silver

Trumpetoreeper**
Campsis radicans

Andropogon saccharoides Fescue, tall

Vaseygrass

Festuca arundinacea

Paspalum uvillei

*Control at the higher rates.

**Suppression at higher rates only.

This product may be rank-mixed with Oust, II tank-mixed, use no more than 1 to 2 pints per acre of this product with 1 to 2 ounces of Oust per acre.

Use the lower rates of both mixtures to control annual weeds below 6 inches in height (or numer length in annual vines) that are listed in the "WEEDS CONTROLLED" section of this booklet and the Oust label. Use the higher rates as annual weeds increase in size and approach the flower or seedlead stages.

Use the higher rates of this product to provide partial control of the following perennial weeds. Use the lower rates for suppression of growth.

Bahiagrass

Pasoalum notatum

Johnsongrass*

Sorghum halepense

Bluestem, silver
Andropagon saccheroides

Poorjae**

Broomsedge

Diodia (eres Trumpetoreeper*

Andropagon virginicus

Campsis radicans

Dock, curty Rumex crispus Yaseygrass Paspalum unvillei

Verbena hastata

Dogfennel

Yervain, biue

Eupatorium capilliforium Fescue, tall

Festuca arundinacea

*Suppression at higher rates only.

* Control at the higher rates.

Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment but regrowth will occur under moist conditions. Repeat applications in the same season are not recommended, since severe injury may result.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

COOL SEASON TURF GROWTH REGULATION

When applied as directed, this product will suppress growth and seedhead development of listed put species in industrial sites.

This product is recommended for management of coarse but on roadside rights-of-way or other industrial areas. Do not use on high-quality turf or other areas where some turf color changes cannot be tolerated. Slight turf discolaration may occur but turf will regreen and regrow under moist conditions as effects of this product wear off.

Apply 4 to 6 fluid ounces of this product per acre alone or in a recommended tank mixture. Spray volumes of 10 to 40 gations per acre are recommended.

When using this product, mix 2 quarts of a nonionic surfactant per 100 gathons of spray solution

This product can be used for growth and seedhead suppression of:

Tall Fescue Smooth Brome

for best results, apply this product in a recommended tank mixture to actively growing turigrasses after greenup in the spring of the year. For suppression of seedneads, applications must be made before boot-to-seedhead stage of development. Applications made from seedhead emergence until maturity may result in turf discoloration or injury.

After mowing or removal of seedheads, this product in a recommended tank mixture may also be used to suppress me growth of certain turfgrasses. Allow turf to recover from stress caused by heat, drought, or mowing before making applications. Applications made to turf under stress may increase the potential for discoloration or injury.

AHKUAL GRASSES

For growth suppression of some annual grasses such as annual ryegrass, wild barley and wild oats, apply 3 to 4 fluid ounces of this product in 10 to 40 gallons of spray solution per acre. Applications should be made when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments trade after seedhead emergence may cause injury to the desired grasses.

TANK MIXTURES

For the following tank mixtures, consult each product label for weeds controlled and the correct stage of application. Do not treat turl under stress.

Tank mixtures plus 2,4-0 Amine

For additional weed control benefits, up to 1 pound a.i. per acre of 2.4-D amine may be added to the following tank mixtures. Consult the label for 2.4-D amine for weeds controlled.

FALL FESCUE

Roundup plus Telarie

For suppression of tall feacute growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.5 ounce of Telar per acre.

This tank mixture can also be applied after moving or removal of talt fescue seedheads for torf growth suppression. Make only one of the above applications per growing season.

Roundup plus Oust

For suppression of tall tescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

Roundup plus Escort[®]

This tank mixture can be applied after moving or removal of tail fescue seedheads for furfigrowth suppression and control or partial control of some annual weeds. Use up to 1/3 nunce of Escort per acre.

NOTE: This product is not registered for use with Escort in California.

SMOOTH BROME

Roundup plus Gust .

For suppression of smooth breme growth and seedheads and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development, tise up to 0.25 ounce of Oust per acre.

BAHIAGRASS SEEDHEAD AND VEGETATIVE SUPPRESSION

When applied as directed in the Indicated noncrop areas (roadsides, airports, golf course roughs, and plant sites), this product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with single applications and approximately 120 days with sequential applications.

Apply this product 1 to 2 weeks after full greenup of bahiagrass or after the bahiagrass has been mowed to a uniform height of 3 to 4 inches. Applications must be made orior to seedhead emergence. Apply 6 fluid ounces per acre of this product plus 0.5 to 1 percent nonlonic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus 0.5 to 1 percent nonlinic surfactant by total spray volume may be made at approximately 45 day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than

2 sequential applications per year. As a first sequential application, apply 4 fluid conces of this product per acre plus nonionic surfactant. A second sequential application of 2 to 4 fluid conces per acre plus nonionic surfactant may be made approximately 45 days after the tast application.

A tank minture of this product plus Oust may be applied only on roadsides for seedhead inhibition and vegetative suppression. Apply 6 fluid ounces per acre of this product plus 0.25 nunce per acre of Oust, plus 0.5 to 1 percent nonionic surfactant by total spray volume 1 to 2 weeks following an initial spring mowing. When using this product plus Oust for suppression of harmaniass, make only 1 application per year.

CROPPING SYSTEMS

When applied as directed for "CROPPHIG SYSTEMS", under the conditions described, this product controls annual and perennial weeds listed on this label, prior to the emergence of direct seeded crops or prior to transplanting of crops listed on this label.

See "GENERAL INFORMATION" and "MUNIG, ADDITIVES and APPLICATION INSTRUC-TIONS" sections of this label for essential product performance information.

See the following "CROPPING SYSTEMS" sections for specific recommended uses:

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS OR FRUIT OF DESIRABLE CROPS, PLANTS, TREES OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground oarts or seed. Except as otherwise specified on this label, repeat treatments must be made before the crop emerges in accordance with the instructions of this label.

Except as otherwise specified in a crop section of this labet, the combined total of all treatments must not exceed 8 quarts per acre of this product per year.

Do not plant subsequent crops other than those on the label for 30 days following application.

Do not harvest or feed treated vegetation for 8 weeks following application. Following spot treatment or selective equipment use, allow 14 days before grazing domestic livestock or harvesting forage grasses and legumes.

BEANS (ALL) ROW CROPS BEET GREENS CORN (ALL)* BEETS (RED.SUGAR) *אסודםם BROCCOLI (ALL) PEANUTS BRUSSELS SPROUTS SORGHUM (MILO)* CABBAGE (ALL) SOYBEANS* SUGAR CANE* CABBAGE, CHINESE CANTALOUPE*** CEREAL GRAINS CARROT SARLEY* CAULIFLOWER BUCKWREAT* CASABA MELON*** MILLET (PEARL. CELERY PR050)* CHARD, SWISS *2TAO CHICORY RICE** COLLAROS RTE* CRENSHAW MELON*** TRITICALE* CUCUMBER*** WHEAT (ALL) * EGGPLAXT*** WILD RICE* ENDIVE CITRUS GARLIC*** CALAMONDIN GOURDS*** CHIRONIA GROUND CHERRY*** CITRON KONTYDEW MELON*** GRAPEFRUIT HONEY BALL MELON*** XUMQUAT HORSERADISH LEMON KALE LIME KOHLRABI MANDARIN ORANGE LEEK ORANGE (ALL) LENTILS PUMMELO LETTUCE TANGELO MANGO MELON*** TANGERINE MELONS (ALL)*** TANGORS MUSKMELON*** MUSTARD GREENS OKRA

ONION TREE NUTS RAPE GREENS ALMOND BEECHNUT PARSLIT PARSNIPS BRAZIL NUT PEAS (ALL) BUTTERNUT PEPPER (ALL)*** CASHEW PERSIAN MELON*** CKESTHUT POTATO (IRISH, SWEET) CHINDUAPIN PUMPAIN*** FILBERT (KAZELNUT) RADISH HICKORY NUT RHUBARB MACADAMIA RUTABAGA PECAN SPINACH (ALL) PISTACHIO HZAUDZ WALNUT (BLACK. (SUMMER; WINTER)*** ENGLISH) TOMATILLO*** YINE CROPS TOMATO***† GRAPES TURNIP KIWI FRUIT WATERCRESS*** TREE FRUITS WATERMELON*** APPLE ZMAY APRICOTS

SMALL FRUITS AND BERRIES CHERRY (SWEET, SOUR) BLACKBERRY BLUEBERRY MAYHAW BOYSENBERRY HECTARINE CRAKBERRY CURRANT . DEWBERRY

LOQUAT

OLIYE

PEACH

PEAR ELDERBERRY PLUM/PRUNE (ALL) GOOSEBERRY QUINCE HUCKLEBERRY LOGAMBERRY YEGETABLES ARTICHOXE, OLALLIEBERRY RASPBERRY JERUSALEM ASPARAGUS* (BLACK, RED)

FORAGE CROPS AND LEGUMES GUAYA ALFALFA* **JABOTICABA** FORAGE GRASSES* JACKERUIT FORAGE LEGUMES* LONGAN LYCHEE TROPICAL CROPS MAHCO ACERDLA PAPAYA ATEMDYA PASSION FRUIT AVOCADO BANAHA (PLANTAINS) PERSIMMONS PINEAPPLE**** BREADFRUIT CAHISTEL **POMEGRANATE** SAPODILLA CARAMBOL A CHERIMOYA SAPOTE (BLACK, MAMEY WH(TE) **COCOA BEANS** SOURSOR COFFEE DATES SUGAR APPLE CHIRAMAT FIGS TFA

- *Spot treatments may be applied in these crops.
- **Do not treat rice fields or tevees when the fields contain flood water.
- ***Apply only prior to planting. Allow at least 3 days between application and planting.
- **** Do not feed or graze treated pineapple lorage following application.

tUse is restricted to direct seeded crops only.

When applying this product prior to transplanting crops into plastic mutch, care must be taken to remove residues of this product from the plastic prior to transplanting. Residues can be removed by 0.5 inch natural rainfall or by applying water via a sprinkler intigation system.

Spot Treatment (Only those creps with "" can be spot treated.)—Applications in glowing crops must be made prior to heading of small grains and mile, initial pod set in soybeans, silking of com, or boll opening on cotton.

For forage grasses and forage legumes see "SPOT TREATMENT" in the "PASTURES" sec-

tion of "CROPPING SYSTEMS" in this label.

Cotton Sorbeans

For dilution and rates of application using boom or hand-hald equipment, see "MDING, ADDITIVES and APPLICATION INSTRUCTIONS" and "WEEDS CONTROLLED" sections of this label

NOTE: FOR FORAGE GRASSES AND FORAGE LEGUMES, NO MORE THAN ONE-TENTH OF ANY ACRE SHOULD BE TREATED AT ONE TIME. FOR ALL OTHER CROPS, OO NOT TREAT MORE THAN 10 PERCENT OF THE TOTAL FIELD AREA TO BE HARVESTED.

THE CROP RECEIVING SPRAY IN TREATED AREA WILL BE KILLED, TAKE CARE TO AVOID ORIFT OR SPRAY OUTSIDE TARGET AREA FOR THE SAME REASON.

Selective Equipment—This product may be applied through recirculating sprayers, shielded applicators or wiper applicators in corton and soybeans. Shielded and wiper applicators may also be used in tree crops and grapes. Where applicators may be used in intabagas, forage grasses and forage legumes, including pasture sites and grain sorghum (milo).

See the "SELECTIVE EQUIPMENT" part of the "APPLICATION EQUIPMENT and TECH-NIQUES" section of this label for information on proper use and calibration of this equipment.

Allow at least the following time intervals between application and harvest:

Do not use miler applicators. Do not feed or graze treated milo fodder. Do not ensite treated vegetation.

ASPARAGUS

When applied as directed for "CROPPING SYSTEMS" under the conditions described, this product controls weeds histed on this label in asparagus.

For specific rates of applications and instructions for control of various annual and gerennial weeds, see the "WEEDS CONTROLLED" section of this label.

Prior to Crop Emergence—Apply this product prior to crop emergence for the control of emerged labeled annual and perennial weeds. OO NOT AFPLY WITHIN A WEEK BEFORE THE FIRST SPEARS EMERGE.

Spot Treatment—Apply this product immediately after cutting, but prior to the emergence of new spears. Do not treat more than 10 percent of the total field area to be harvested. Do not harvest within 5 days of treatment.

Postharvest—Apply this product after the last harvest and all spears have been removed. If spears are allowed to regrow, delay application until lems have developed. Delayed treatments should be applied as directed or shielded spray in order to avoid contact of the spray with tems, stems or spears. Direct contact of the spray with the asparagus may result in serious crop injury.

NOTE: Select and use recommended types of spray equipment for postemergance postharvest applications. A directed spray is any application where the spray pattern is aligned in such a way as to avoid direct contact of the spray with the crop. A shielded spray is any application where a physical barrier is positioned and maintained between the spray and the crop to prevent contact of spray with the crop.

BERRIES AND SMALL FRUITS

For cranberries, apply after fruit set and no later than 30 days before harvest.

For other berries, apply as a preplant broadcast application, or as a directed spray or wiper application post-planting.

Wiper applicators may be used in cranbenies in accountance with instructions in this section. See "GENERAL INFORMATION" and "MEDING, ADDITIVES and APPLICATION INSTRUC-TIONS" sections of this label for essential product performance information.

See the "SELECTIVE EQUIPMENT" part of the "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for information on recommended use and calibration of this equipment.

Allow a minimum of 14 days between last application and harvest of small fruits and benies.

For Wick or other Wiper Applicators—Min. I gallon of this product in 4 gallons of water to prepare a 20 percent solidion. Apply the solution to emerged weeds. Apply after cranberry built set and no later than 30 days before harvest.

In severe intestations, reduce equipment ground speed to ensure that adequate amounts of this product are wiped on the wreds. A second treatment in the opposite direction may be beneficial.

Do not permit herbicide solution to contact desirable vegetation, including green shoots, canes or foliage.

FALLOW AND REDUCED TILLAGE SYSTEMS

FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO SUPPLEMENTAL LABEL

Use this product in lattow and reduced tiflage systems hat control of annual weeds prior to emergence of crops listed in this label. Refer to the "WEEDS CONTROLLED" section of dustabel for specific rates and instructions. This product may be applied using ground or aerial spray equipment. See the "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for instructions.

TANK MIXTURES

- Roundup plus BANYEL plus NONIONIC SURFACTANT
 - Roundup plus 2,4-D plus NONIONIC SURFACTANT
- Roundup plus GOAL™ plus NONIDNIC SURFACTANT |

DO NOT APPLY BANYEL OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA.

Applications of 2.4-D or Banvel must be made at least 7 days prior to planting corn.

The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed species. Some crop injury may occur if Banvel is applied within 45 days of planting. Refer to the Banvel and 2.4-D labels for cropping restrictions and other use instructions.

Roundup plus Goal Tank Mixtures

This product alone or in tank mixtures with Goal plus 0.5 to 1 percent contonic surfactant try total spray volume will crowide control of those weeds listed below.

Make applications when weeds are actively growing and at the recommended stages of growth. Avoid spraying when weeds are subject to moisture stress, when dust is on the foliage or when straw canopy covers the weeds.

Roundup# 12 fluid az/acre		Roundup® 16 fluid oz/acre	
Wheat	18	Annual grasses at left plus:	
Bartey	12	Ryegrass, annual	6*
Bluegrass, annual	6'	Chickweed	6*
<u>-</u>	_	Groundsel	5"
Barnyarcgrass	61	Marestail	6*
Rye	6"	Rocket, London	6"
,		Shepherdspurse	6"
		Crabgrass	17
		Johnsongrass, seedling	12*
		Lambsquarters	12
		Oats, wild	12
		Pigweed, redroot	12
		Mustards	17

NOTE: Use 32 fluid ounces of this product per acre where heavy weed densities exist.

Roundup® 12 Nuid oz/acre + GOAL **		Roundup® 16 fluid oz/ac + GOAL**	ere.
2 to 4 fluid oz/acre		2 to 4 fluid oz/acre	
Annual grasses above plus:		Annual weeds above plus:	
Cheeseweed, common	3*	Cheeseweed, common	6"
Chickweed	3*	Groundsel ·	6"
Groundsel	7	Chickweed	12*
Rocket, London	6-	Racket, London	12
Shepherdspurse	6"	Shepherdspurse	12**

NOTE: Use 32 flaid ounces of this product per acre in mixtures with 2 to 4 fluid ounces of Goal per acre where heavy weed densities exist.

- * Maximum height or length in inches.
- TO Use the higher rate of Goal when weeds approach maximum recommended height or stands are dense.

These recommended tank mixtores may be applied using ground or aerial spray equipment. Refer to the "WEEDS CONTROLLID" section of this label for specific rates and instructions.

ECOFARMING SYSTEMS

The recommendations made in this section are not registered for use in California.

The Ecotaming System consists of the following rotation: winter wheat, com/sorghum, ecotalbox

Use the following tank mixtures for control of emerged annual weeds before planting corn or sorghum in the Ecotarming System.

Roundup at 16 to 20 fluid ounces per acre

plus

2,4-D at 0.375 to 0.5 pound a.i. per acre

plus

ATRAZINE at 0.75 to 1 pound a.i. per acre

plus

LASSO® at 2.5 to 3 quarts per acre

The above tank mixture should be applied in 28-0-0 or 32-0-0 liquid fertifizer carrier at 20 to 30 gallons per acre. The liquid fertifizer may be diluted with water to achieve the desired carrier volume.

WEEDS CONTROLLED—The following weeds, up to a maximum height of 4 inches, will becontrolled.

Brome, downy

Lettuce, prickly

Bromus tectorum

Pigweed, redroot

Cheat Bromus secalinus

Amaranthus retroflerus

Foxtait, green Setaria viridis Thistle, Ressian Salsola kali

Foxtail, yellow Setaria lutescens

Wheat, volunteer Indicum aestivum

Kochia*

Kochia scoparia

*For improved control of kachia, add 4 fluid ounces per acre (0.125 pound a.i. per acre) of Banvel to the above tank mixture.

Risk of crop injury from 2.4-D or Banvel can be reduced by applying this treatment 7 to 14 days before planting.

Refer to the label booklet for Lasso herbicide for preemergence weed control achieved by this tank mixture.

Refer to the specific product labels for crop rotation restrictions and cautionary statements for all products used in these tank mixtures.

AID TO TILLAGE

This product, when used in conjunction with preplant billage practices, will provide control of downy brome, cheat, volunteer wheat, tansy mustard and foxtail. Apply 8 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make applications when weeds are actively growing and before they are 6 inches in height. Application must be followed by conventional billage practices no later than 15 days after treatment and before regrowth occurs. Allow at least 1 day after application before tillage. Tank mixtures with residual herbicides may result in reduced performance.

PASTURES

Apply this product prior to planting forage grasses and legumes.

Pasture or Hay Crop Renovation—When applied as a broadcast spray, this product controls the annual and perennial weeds listed in this label prior to planting forage grasses or legumes. Remove domestic livestock before application and wait 8 weeks after application before grazing or harvesting.

Spot Treatment—When applied as a spot treatment as recommended, this product controls annual and perennial weeds fisted in this label which are growing in pastures, torage grasses and forage legumes composed of bahiagrass, bermudagrass, bluegrass, brome, tescue, orchaidgrass, tyegrass, bimothy, wheatgrass, atlatta or clover.

Wiper Application—When applied as directed, this product controls or suppresses the weeds listed under "WIPER APPLICATORS" in the "SELECTIVE EQUIPMENT" section of this labor.

For spot treatment and wiper application, apply in areas where the movement of domestic livestock can be controlled. No more than one-tenth of any acre should be treated at one time, Further applications may be made in the same area at 30-day intervals. Remove domestic livestock before application and wait 14 days after application before grazing livestock or harvesting.

SUGARCANE

When applied as directed for "CROPPING SYSTEMS", under the conditions described, this product controls those emerged annual and perential weeds listed on this label growing in or around sugarcane or in fields to be planted to sugarcane. This product will also control undesirable sugarcane.

NOTE: Where repeal treatments are necessary, do not exceed a total of 10.6 quarts of this product per acre per year. Do not apply to vegetation in or around ditches, canals or ponds containing water to be used for imigation.

Broadcast Treatment—Apply this product in 10 to 40 gallons of water per acre on emerged weeds growing in fields to be planted to sugarcane.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this tabel.

For removal of last stubble or ration cane, apply 4 to 5 quarts of this product in 10 to 40 gallons of water per acre to new growth having at least 7 or more new leaves. Allow 7 or more days after application before tillage.

Spot Treatment in or Around Sugarcane Fields—For dilution and rates of apolication using hand-held equipment, see "MOUNG, ADDITIVES and APPLICATION INSTRUCTIONS" and "WEEDS CONTROLLED" sections of this label.

For control of volunteer or diseased sugarcane, make a 1 percent solution of this product in water and spray to wet the loftage of vegetation to be controlled.

NOTE: When spraying volunteer or diseased sugarcana, the plants should have at least 7 new leaves.

Avoid soray contact with healthy cane plants since severe damage or destruction may

Do not feed or graze breated sugarcane forage following application.

CONSERVATION TILLAGE, MINIMUM TILLAGE AND NO-TILL SYSTEMS CORN AND SOYBEANS Tank Mixtures

The recommendations made in this section are not registered for use in California.

When applied as recommended under the conditions described, the tank mixtures listed in this section control many emerged weeds, and give preemergence control of many annual weeds where com or soybeans will be planted directly into a cover crop, established sod or in previous crop residues.

Refer to specific product tabels for crop rotation restrictions and cautionary statements of all products used in these tank mixtures. For mixing instructions, see the "MDDNG, ADDI-TIVES and APPLICATION INSTRUCTIONS" section of this label.

Apply these tank mixtures in 10 to 20 gallions of water or 10 to 60 gallions of nitrogen solution per acre before, during or after planting. Do not apply these mixtures after crop empresente

When tank mixing with residual herbicides, add an agriculturally approved reprionic surfactent at 0.5 to 1 percent by volume of spray solution. The addition of 1 to 2 percent dry amongium sulfate by weight may increase the performance of this product.

NOTE: When using these tank mixtures, do not exceed 4 quarts of this product per acre.

CORN

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

LASSO*/ALACHLOR ATRAZINE
LARIAT* CYAMAZINE
BULLET* SIMAZINE
DUALT* PROWL**
BECEFT* MICRO-TECH*

For improved burndown, this product may be tank-mixed with 2,4-0 or dicamba. Applications of 2,4-D or dicamba must be made at least 7 days prior to planting corn. See the "WEEDS CONTROLLED" section for specific rate information.

SOYBEANS

for residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

CANOPY™ LOROXT* PLUS COMMANDIN PREYIEW PROME DITAL DA TURBOR GEMINITA SCEPTER LASSO#/ALACHLOR SENCOR™ LETTONETO SQUADRONT# LINURON PURSUIT PLUS^{TO} PURSUITIN MICRO-TECH* PARTNER®

71

16%

For improved burndown, this product may be tank-mixed with the following perpicides:

2,4-08 2.4-D •

*See the label for 2,4-D for intervals between application and planting.

CORN AND SOYBEANS

Annual Weeds—For difficult-to-control weeds such as fatt panicum, barnyardgrass, crabgrass, shattercane and broadleaf signalgrass up to 2 inches tall, and Pennsylvania smartweed up to 6 inches tall, apply this product at 2 pints per acre in these tank mixtures. For other labeled annual weeds, apply 1 to 1.5 pints of this product per acre when weeds are tess than 6 inches tall, and 2 to 3 pints when weeds are over 6 inches tall, for a complete list of annual weeds controlled, see the "WEEDS CONTROLLED" section of this land.

Perennial Weeds—At normal application times in minimum tillage systems, perennial weeds may not be at the proper stage of growth for control. See the "WEEDS CONTROLLED" section of this label for the proper stage of growth for perennial weeds.

Use of 2 to 4 quarts of this product per acre in the tank mixtures mertioned above, under these conditions provides top kill and reduces competition from many emerged perennial grass and broadleaf weeds. For emerged perennial weeds controlled, see the "WEEDS CONTROLLED" section of this label.

To obtain the desired stage of growth, it may be necessary to apply this product alone in the late summer or fall and then follow with a label-approved, seedling weed control program at planting.

USE OF THESE TARM MUTURES FOR BERMUDAGRASS OR JOHNSONGRASS CONTROL IN MINIMUM TILLAGE SYSTEMS IS NOT RECOMMENDED. For bermudagrass control, follow the instructions under "CONTROL OF PERENNIAL WEEDS" section of this label and then use a label-approved, seedling weed-control program in a minimum tillage or conventional tiltage system. For Johnsongrass control, follow instructions under "CONTROL OF PERENNIAL WEEDS" section of this label, and then use a label-approved, seedling weed-control program with conventional tiltage.

PREHARVEST APPLICATIONS

When applied as directed under the conditions described, this product controls annual and perennial weeds listed on this label prior to the harvest of cotton and soybeans.

SOYBEANS

Apply after pods have set and lost all green color, Allow a minimum of 7 days between application and harvest of soypeans. Care should be taken to avoid excessive seed shatter loss due to ground application equipment.

Do not graze or harvest treated crop for livestock feed within 25 days of last preharvest application.

OO NOT APPLY MORE THAN 6 QUARTS PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS.

DO NOT APPLY MORE THAN I QUART PER ACRE OF THIS PRODUCT BY AIR.

For specific rates and application instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of the Roundup label booklet.

This product may be applied by both ground and aerial anglication equipment. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of the Roundup label booklet for instructions for ground and aerial applications.

NOTE: It is not recommended that soypeans grown for seed be treated because a reduction in germination or vigor may occur.

The use of this product for preharvest soybeans is not registered in California.

сотто

Broadcast Applications—This product may be applied using either aerial or ground spray equipment. For ground applications with broadcast equipment apply this product in 10 to 20 gallons of water per acre. For aerial applications, apply this product in 3 to 10 gallons of water per acre.

FOR ARRIAL APPLICATIONS, REFER TO THE TAPPLICATION EQUIPMENT AND TECHNIQUES" AND TARRIAL EQUIPMENT" SECTIONS OF THIS LABEL.

FOR AERIAL APPLICATIONS IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT WHEN MAXING APPLICATIONS BY AIR.

Weed Control—For specific rates of application and instructions for control of various annual and perennial weeds for this product used alone or in the following tank mixtures, see the "YFEOS CONTROLLED" section of this label.

To control Johnsengrass using multiple-directed or broadcast over-the-top spray equipment, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure complete coverage.

For partial control of field bindweed, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallors of water per acre. Apply when bindweed is actively growing and 12 inches or greater in length. Reduced performance may result if bindweed is under groupht stress.

TANK MIXTURES

Roundup plus DEF™ 6
Roundup plus Folex™
Roundup plus Prep™
Roundup plus Prep plus DEF 6 or Folex

When applied as recommended under the conditions described, these tank mintures control annual and perennial weeds listed on this label prior to the harvest of cotton. For application guidelines, precautions and use-rates, refer to the DEF, Folex and Prep labels.

This product when tank mixed with DEF 6 or Folex defoliants may provide enhancement of cotton less drop and regrowth inhibition.

Timing of Application—Apply this product or these tank minimizes for preharvest weed control after 50 percent of the collor boils have opened.

NOTE: DO NOT APPLY TO CROPS GROWN FOR SEED. Allow a chichmum of 7 days between application and harvest. On not feed or graze treated conton forage or hay following pre-harvest applications.

TREE AND VINE CROPS

This product is recommended for weed control in established groves, vineyards, and orchards, or for site preparation grior to transplanting crops listed in this section. Applications may be made with boom equipment, CDA, shielded sprzyers, hand-held and high-volume wands, lances, orchard guns, or with wiper applicator equipment, except as directed in this section. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for specific information on use of equipment.

When applying this product, refer to the "WEEDS CONTROLLED" section of this label and to specific recommendations in this section for rates to be used.

NOTE

Repeat treatments may be necessary to control weeds originating from underground parts of univerted weeds or from seeds. This product does not provide residual weed control. For subsequent weed control, use repeated applications of this product. Do not apply more than 10.6 quarts of this product per acre per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT OR OTHER PARTS OF TREES OR WINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

AVOID PAINTING OUT STUMPS WITH THIS PRODUCT AS INJURY RESULTING FROM ROOT GRAFTING MAY OCCUR IN ADJACENT TREES.

Reduced control may result when applications are made to anoual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

For specific rates of applications and instructions, see the "WEEDS CONTROLLED" section of this label, and to specific recommendations which follow.

MIDDLES MANAGEMENT

FOR ANNUAL WEEDS IN MIDDLES BETWEEN ROWS OF TREE AND VINE CROPS

For citrus crops treat uniformly between trees.

Roundup

Roundup plus GOALTM

This product alone or in mixtures with Goal will control or suppress the annual weeds listed below.

Apply the recommended rates of this product, either alone or in mixtures with Goal, plus 0.5 to 1 percent nonionic surfactant by spray volume in 3 to 10 gallons of water cer acre. Apply when weeds are actively growing and less than 6 inches in beight or diameter, if weeds are under drought stress, irrigate cains to application. Reduced control may occur if weeds have been mowed prior to application. Up to 48 fluid ounces per acre of this product may be used to control weeds, which have been mowed, are stressed, or are growing in dense populations.

WEED SPECIES	MAXIMUM Height/Diameter (inches)	ROUNDUR		<u>acre</u> Goal (Fluid Ounces)
Barley Hordeum vulgare Bluegrass, annual Poa annua	6.	8		
Barnyardgrass Echinochloa crus-gelli	6	12		-;,
Chickweed, common Stellana media			-	
Red Maids Calandrinia ciliata	1 1		. 4	<i>3</i> .

Crabgrass - Digitana spp.	6	16 08	_
Fleahane, hairy Conyra bonanensis		15 to 32 +	4 to 15**
Groundsel, common Senecio vulgaris			
langlarica — — Echinochloa culonum			÷
Lambsquarters, common Chenopodium album			
Pigweed, rednoot Amerantius renofierus	7.6.15 201.13.5	*	
Rocket London Sisymanum irio			
Ryegrass, common Lobum mutiflorum	promotion of analogo me		
Shepherdspurse Capsella bursa-pastoris		-	
Sowthistic, annual Sonchus oleraceus	ातः अध्यक्षात्रस्य द्वारा स्थानमञ्जूषा	1 4 (1)	
Cheeseweed, common Mahra spp.	3	- 12 to 32 +	4 to 16
Cheeseweed, common Malva sop.	5	16 to 32 +	4 to 15
Filares* Erodium spp.			
Horseweed/Marastail	de en maria		

	MUMUKAM	RATE PER ACRE
WEED SPECIES	HEIGHT/DIAMETER (INCHES)	ROUNDUP® GOAL (FLUID OUNCES) (FLUID OUNCES)
Nettle: stinging Unica dioica	6	16 to 32 + 4 to 16
Purselane, common* Purtulaca oleracea		

^{*}Suppression only.

STRIPS

FOR ANNUAL AND PERENNIAL WEEDS IN STRIPS OF TREE AND VINE CROPS

■ TANK MIXTURES WITH RESIDUAL KERBICIDES

When applied as a tank minture, this product provides control of the emerged annual weeds and control or suppression of emerged perennial weeds listed in this label. The following residual herbicides will provide preemergence control of those weeds listed in the individual product tabels.

	Roundup ptus GOAL™ 1.6E	
	Roundup plus KARMEX TM DF	
	Roundup plus KROVAR™ I	
	Roundup plus KROVAR™ 11	
	Roundup plus SIMAZINE, PRINCEP CALIBERTM 90	
■.	Roundup plus SIMAZINE 4L	
	Roundup plus SIMAZINE 80W	

	Roundup plus SOL1CAM™ BODF	
	Roundup plus SURFLAN™ AS	
	Roundup plus SURFLAN 75W	
•	Roundup plus SIMAZINE (80W, or 4L, or PRINCEP CALIBER 90) plus SURFLAN (AS or 75W)	-
	Roundup plus GOAL (1.6E) plus SURFLAN (AS or 75W)	
	Roundup plus GOAL (1.6E) plus SIMAZINE (80W, or 4L, or PRINCEP CALIBER 90)	

Roundup plus GOAL (1.6E) plus SURFLAN (AS or 75W) plus SIMAZINE (80W, 4L, or PRINCEP CALIBER 90)

Do not apply these lank mixtures in Puerto Rico.

When tank-mixing with residual heroicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of soray solution.

Refer to the individual product labels for specific crops, rates, geographical restrictions and precautionary statements.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the labels of all products.

RECOMMENDED RATES

Annual Weeds—Apply 1 to 5 quarts per acre of this product in these tank mixtures. Use rates at the higher end of the recommended range when weeds are stressed, growing in dense populations or are greater than 12 inches tall.

Perennial Weeds—Apply 1 pint to 5 quarts per acre of this product in these tank mintures to control or suppress perennial weeds. Follow the recommendations in the "WEEDS CONTROLLED" section of this label for stage of growth and application rates for specific perennial weeds.

Roundup plus GOAL plus SIMAZINE/SURFLAN

This product plus low rates of Goal in 3-way or 4-way mixtures with simazine another Surflan will provide postemergence control of the weeds listed below. LANGE OF THE PARTY OF THE PARTY

^{**}The mixture of this product plus Goal is recommended when weeds are stressed or growing in dense populations.

Refer to the individual simuline and Surflan labels for preemergence rates, weeds controlled, precautionary statements and other important information.

Apply these tank mixtures in 3 to 40 gallons of water, Add 0.5 to 1 percent nonionic surfactant by total sozay volume to the soray solution.

Apply 1 to 5 quarts per acre of this product plus 4 to 48 fluid ounces per acre of Goal plus labeled rates of simazine and/or Surftan to control the following weeds:

Barley, wild Hordeum leporinum Horseweed/Marestail Conyra canadensis

Bluegrass, annual

Nettle, stinging
Unica dioica

Poa annua Cheeseweed, common Malva sno

Pineappleweed

Matricaria matricariodes

Chickweed, common Stellaria media Rocket, London
Sisymbrium irio

Filaree*
Erodium spp.
Fleabane, hairy

Shaphardspurse Capsella bursa-pastoris

Sowthistie, annual
Sonchus aleraceus

Conyza bonariensis Groundsel, common Senecio vulgaris

*Use a minimum of 1.5 quarts of this product in these mixtures.

NOTE: This recommendation does not preclude the use of Goal in these mixtures at higher, labeled rates for preemergence weed control.

■ PERENNIAL GRASS SUPPRESSION ORCHARD FLOORS

When applied as directed, this product will suppress vegetative growth as indicated below

Bahiagrass

This product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with a single application and approximately 120 days with sequential applications. Apply this product 1 to 2 weeks

after full green-up or after mowing to a uniform beight of 3 to 4 inches. Applications must be made prior to seedhead entergence. Apply 6 fluid ownces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus nonionic surfactant may be made at approximately 45-day intervals to extend the period of seechead and vegetative growth suppression. For continued seechead suppression, sequential applications must be made prior to seechead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces may be made approximately 45 days after the last application.

Bermudaerass

For burndown, apply 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallans of water per acre. Use 1 quart of this product in 3 to 20 gallans of water per acre east of the Rocky Mountains. Use 1 to 2 quarts of this product in 3 to 10 gallons of water per acre west of the Rocky Mountains. Use this treatment only if reduction of the bermunagrass stand can be tolerated. When burndown is required prior to harvest, allow at least 21 days to ensure sufficient time for burndown to occur.

Suppression only (east of the Rocky Mountains)—Apply 6 to 16 fluid nunces of this product plus 9.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallions of water oer acre no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Ratas of 6 to 10 fluid ounces of this product plus nonionic surfactant should be used in shaded conditions or where a tesser degree of suppression is desired. Sequential applications may be made when regrowth occors and bermudagrass injury and stand reduction can be tolerated.

Supprassion only (west of the Rocky Mountains)—Apply 16 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 galfons of water per acre to bermudagrass up to 6 inches in height and no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Sequential applications may be made when regrowth occurs and bermudagrass injury and stand reduction can be tolerated.

Cool Season Grass Covers

For suppression of tall fescue, fine fescue, orchardgrass and quackgrass, apply 8 fluid nunces of this product plus 0.5 to 1 percent nonionic surfactant by total spray valume in 10 to 20 gallons of water per acre. For best suppression, add ammonium suffeto to the

spray solution at a rate of 2 percent by weight or 17 gounds per 100 gallons of spray solution.

For suppression of Xentucky bluegrass covers, apply 6 fluid ounces of this product plus 0.5 to 1 percent nonipole surfactant. Do not add ammonium sulfate.

For best results, mow cool-season grass covers in the soring to even their height and apply the recommended rate of this product 3 to 4 days after mowing. Avoid treating cool season grass covers under poor growing conditions, such as drought stress (drip irrigation), disease or insect damage.

LOW VOLUME APPLICATION (FLORIDA AND TEXAS)

For burndown or control of the weeds listed, apply the recommended rates of this product plus 0.5 to 1 percent nonionic surfactant by total sprzy volume in 3 to 30 gallons of water per acre. Where weed foliage is dense, use 10 to 30 gallons of water per acre.

Annual Weeds

Goalweed—Apply 2 to 3 quans per acre of this product plus 17 pounds of ammonium sulfate per 100 gallons of water plus 0.5 to 1 percent nonlenic surfactant by total spray volume. Apply in 20 to 30 gallons of water per acre when plants are actively growing. Use 2 quants per acre when plants are greater when blants are greater than 8 inches tell and 3 quants per acre when plants are greater than 8 inches tell and 3 quants per acre when blants are greater than 8 inches tell to the tell of Krowar II or Karmer may improve control. Use tabeled rates for these residual products.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the Krovar II and Karmes labels.

Perennial Weeds

Apply when weeds are actively growing and at the growth stages listed in the "PEREN-NIAL WEEDS CONTROLLED" section of this label. If perennial weeds are mowed, allow weeds to regrow to the recommended stage of growth.

S = Suppression PC = Parual control	8 = Burndowr C = Control	1		
WEED		Roundup * RATE PER ACRE		
SPECIES	İçt	2 qts	3 qts	5 qts
Bermudagrass	3	•	PC	C.
Guineagrass				
Texas and Florida Ridge	В	C	C	Ċ
Florida Flatwoods	•	В	C	C
Paragrass	В	C	C	C
Torpedograss	5	•	PC	C

TREE CROPS

Citrus*: catamondin, chironja, citron, grapefruit, Nomquat, Temon, Time, mandarin orange, orange, pummeto, tangelo, tangene, tangers.

Nots**: atmond, beachmot, Brazil cot, butternut, cashew, chestouts, chinquapin, filbert, hazel nut, hickory cut, macadamia, pecan, pistachio, walkut.

Pome Fruit*: apple, loquat, mayhaw, pear, cuince.

Stone Fruit***: apricots, chemies, nectarines, plives, peaches, plums/primes

For chemies, any application ecoloment listed in this section may be used in all states.

For cition and olives, apoly as a directed spray only.

Any application equipment listed in this section may be used in apricots, nectarines, peaches and plums/prunes growing in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Jexas, Utah and Washington, except for peaches grown in the states specified in the following paragraph. In all other states use wiper economent only.

For PEACHES grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee only, apply with a shielded boom sprayer or shielded wiper applicator, which prevents any contact of this product with the foliage or bank of trees. Apply no later than 90 days after first bloom. Applications made after this time may result in severe damage. Kemove suckers and low-hanging imps at teast 10

days prior to application. Avoid applications near trees with recent pruning wounds or other mechanical injury. Apoly only rear trees which have been planted in the orchard for 2 or more years. EXTREME CARE MUST BE TAKEN TO ENSURE NO PART OF THE PEACH TREE IS CONTACTED.

Tropical Fruit: acerola", atemoya", avocado", banana" (plantains)""", breadfruit", canistel", carambola", chenimoya", cocoa beans", coffee""", dates", figs", genip", guava"""", jaboticaba", jackfruit", longan", lychee", mango", mayhaw", papaya""", passion fruit", persimmons", pomegranate", sapodilla", sapote", soursop", sugar apple", lamarind", tea", in coffee and banana, delay applications 3 months after (ransplanting to allow the new coffee or banana plant to become established.

NOTE:

- * Allow a minimum of 14 days between last application and harvest.
- ** Allow a minimum of 3 days between last application and harvest of these crops, except for pistachio nuts. For pistachio nuts, allow a minimum of 21 days between last application and harvest.
- *** Allow a minimum of 17 days between tast application and harvest.
- **** Allow a minimum of 28 days between last application and harvest.
- **** Allow a minimum of I day between last application and harvest.

VINE CROPS

Kiwi Fruit

Grapes: Any variety of table, wine or raisin grape may be treated with any equipment listed in this section.

Applications should not be made when green shoots, canes, or lobage are in the spray zone.

Allow a minimum of 14 days between last application and harvest.

In the northeast and Great Lakes regions, applications must be made prior to the end of bloom stage of grapes to avoid injury.

^{*} Buffet, Lasso, Micro-Tech, Partner and Larial are regulated trademarks of Monsanto Company.

TM Oust, Kiovar, Escort, Telar, Canopy, Blader, Gemoni, Essone, Lorox Phrs, Preview, and Karmes are trademarks of Elit duPont de Nemours and Company.

^{**} Qual. Bicep. Princep and Cabber are trademarks of Cipa-Gerry Corporation.

^{**} Surften is a transmark of Elenco Products Company.

ne Barryel and Sohoam are trademarks of Sandor, Inc.

Ponstar, Foley and Prep are trademarks of Phone-Poulenc, Inc.

^{**} Goal is a trademark of Robin and Haas Company.

³⁴ Sencor and Turbo are trademarks of Bayer AG.

Provid, Pursuit, Persuit Phys, Scepter and Squactor are trademarks of American Cyanamid Company.

^{**} Command is a trademark of FMC Corporation.

IN DET is a trademark of Motory Chemical Company.

^(w) Miscrotod is a trademark of Union Cartisle Agricultural Products, Inc.

th Thru-Valve is a tragemark of Waldrom Speciations, bit.

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This product is protected by U.S. Patent No. 4.405,531. Other patients pending. No license granted under any non- U.S. patent(s).

EPA Reg No. 524-445

898.07-000 45/53

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

MONSANTO COMPANY 1994

MONSANTO COMPANY AGRICULTURAL PRODUCTS ST. LOUIS, MISSOURI, 63167 U.S.A. This product is protected by U.S. Patent No. 4,405,531, Other patents pending. No license granted under any non- U.S. patent(s).

EPA Reg. No. 524-445

898.07-000,45/53

In case of an emergency involving this product, Call Collect, day or night, (314) 594-4000.

MONSANTO COMPANY 1994

In Accordance with PR Notice 82-3.
Based on Draft Labeling Dated

1124194

MONSANTO COMPANY AGRICULTURAL PRODUCTS ST. LOUIS, MISSOURI, 63167 U.S.A.

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

May 11, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A. Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup[®] Herbicide (EPA Reg. No. 524-445)

Submission of Final Printed Label Booklets

Dear Sir:

Monsanto is submitting final printed labels of a Roundup® herbicide label booklet for your files. The directions for use language was approved by the Agency on December 17, 1992, while the statements required by the Worker Protection Standard were accepted by the Agency on January 14, 1994. This label is also identical to a final printed label booklet that was submitted to the Agency on December 21, 1993, except that the physical size of this booklet is larger.

Enclosed are five (5) copies of the label (version 1994-1: 898.07-000.45/53).

If you have any questions regarding this submission, please contact Dr. Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D. Manager, Regulatory Affairs

Shula a. Schuette

(314) 694-7248

cc: R.P. Schneider

Picase read instructions on reverse before completing form.	Form Approved. OMB No. 2070-0060. Approval expires 11-30-93				
(A) United States Environmental Protect					
Office of Pesticide Programs (F Washington, DC 20460	Amendment				
Application for Per	sticide: × Other 207622				
Section I					
1. Company/Product Number 524-445	2. EPA Product Manager Robert J. Taylor				
4. Company/Product (Name)	PM# x None Restricted				
Roundup® Herbicide	0 5 40 4 5 1 4 4 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5				
5. Name and Address of Applicant (Include ZIP Code)	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling				
Monsanto Company	to:				
700 14th Street, N.W., Suite 1100 Washington, DC 20005	EPA Reg. No				
Check if this is a new address	Product Name				
. Section I I					
Final printed labels in response to					
Amendment - Explain below	x Agency letter dated 12/17/92 and 1/14/94				
Resubmission in response to Agency letter dated	"Me Too" Application.				
Notification - Explain below.	Other - explain below.				
Explanation: Use.additional page(s) if necessary. (For section I and Section II.)					
·					
	· ·				
	·				
Section III					
Material This Product Will Be Packaged In: Child-Resistant Packaging Unit Packaging Water Water	Soluble Packaging 2. Type of Container				
	Yes Metal				
	Plastic Glass				
LX No LX P	Paper				
If "Yes," No. per If "Yes " Certification must be Unit Package wgt. container Package	" No per Other (Specify)				
submitted.					
Location of Net Contents Information 4. Size(s) of Retail Co.					
Label X Container Various	On Labeling accompanying product				
6. Manner In Which Label Is Affixed To Product Lithograph X Other (vinyl glued)					
Section IV					
	idual to be contacted, if necessary, to process this application.)				
Name Title Ag	ricultural Regulation Telephone No. (Include Area Code)				
·	(202) 783+2460				
Certification 6. Date Application					
I certify that the statements I have made on this form and all attachmen I acknowledge that any knowingly false or misteading statement may both under applicable law.					
2. Signature 3. Title					
	ager, Regulatory Affairs				
4. Typed Name 5. Date					
V. Butt	,				
Sheila A. Schuetre Ph n 🕒					
Sheila A. Schuetre, Ph.D.	Tay 11, 1994				

PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate on any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];

2. Confidential Statement of Formula (EPA Form 8570-4);

3. Formulator's Exemption Statement (EPA Form 8570-27);

4. Five copies of draft labeling;

Three copies of any data submitted;

6. Authorization letter where applicable;

7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft Labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission.

Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections 1, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections 1, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

- Company/Product Number Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
- 2. EPA Product Manager If known, fill in the name and PM number of the EPA Product Manager.

3. Proposed Classification - Specify the proposed classification of this product.

- 4. Product Name Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
- 5. Name and Address of Applicant The name of the firm or parson and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
- 6. Expedited Review FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.
- SECTION II This section must be completed for all applications submitted to amend the registration only of a currently registred product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.
- 1. Subject of mulmission Check the applicable block and provide the Agency letter date if appropriate? Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments:

Type of Packaging - Check the appropriate block if your product will be packaged in the indicated packaging types.
 Indicate the size of the individual packets and number per retail container.

2. Type of Retail Container - Indicate type of container in which product will be marketed.

- 3. location of Net Contents Specify the net contents of all retail containers for your product.
- 4. Size(a) of Retail Container Specify the net contents of all retail containers for your product.
- 5. Location of Use Directions Indicate the Location of the use directions for your productive is the second of Use Directions Indicate the Location of the use directions for your productive is the second of Use Directions Indicate the Location of the use directions for your productive is the second of Use Directions Indicate the Location of the use directions for your productive is the use of the
- 6. Resmer in which label is affixed to product Indicate: the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., -new products registration, resubmission, "me-too," reregistration, etc.

1-5. Self-explanatory, 6. EPA Use Only.

Yellow

Applicant only

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Wasser SEQA File Constructionell

EA Form 8570-1 (Ray 12-90) Provious editions are obsolete

Dr. Sheila A. Schuette Monsanto Company 700 14th St. N.W., Suite 1100 Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Add Use on Coconuts
Roundup Herbicide
EPA Reg. No. 524-445
Your submission dated May 4, 1994

The amendment referred to above, submitted in connection with registration under PIPRA sec. 3(c)(7)(A), is acceptable provided that you:

- l. Submit and/or cited all data or other material required for registration/reregistration of your product under PIFRA sec. 3(c)(5) or FIFRA section 4 when the Agency requires all registrants of similar products to submit such data.
- 2. Submit five (5) copies of your final printed labeling incorporating the following changes before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Sincerely yours,

Robert J. Taylor Product Manager 25 Fungicide-Herbicide Branch Registration Division (H7505C)

enclosure

Washington, DC 20460 Application for Pesticide: X Amendment 207618	(A) United States Environmental Potting of Restricte Princes	
Section 1 Company/Product (Name) Roundup9 Her bicide S. Name and Address of Application Agency (Street, N.W., Suite 1100 Monitanto Company 700 14 ch Street, N.W., Suite 1100 Mashington, DC 20005 Check if this is a new address Section II Amendmil - Explain below Resultmission in response to Agency (Interdated Mostication Explain below) Resultmission in response to Agency (Interdated Mostication Explain below) Resultmission in response to Agency (Interdated Mostication Explain below) Section II Material This Product Will Be Packaged Int. Child-Resistant Packaging Water Soluble Packaging Passic Class Water Soluble Packaging Water Soluble Packaging Passic Class Water Soluble Packaging Most Packaging Passic Class Location of Net Contents Information Assistant Packaging Water Soluble Packaging Container Passiging Container Various Container Passiging Container Passiging Container Passiging Container Passiging Container Passiging Container Passiging Container Various Container Passiging Container Various Container Various Container Passiging Container Various Container Passigned Container Various Container Various Container Passigned Container Various	Office of Pesticide Program Washington, DC 2	ns (H/SUSC)
CompanyProduct Number 524-445 2. EPA Product Manager 3. Proposed Classification Roundup® Herbicide	Application for	Pesticide: Other 207618
4. Gompany/Product (Name) Roundup® Herbicide 5. Name and Address of Applicant (Include ZIP Code) Mon Sant O Company 700 14ch Street, N.W., Suite 1100 Washington, DC 20005 Check if this is a new address Section II X Resulting This Product Name Section III Supplemental label for use in Coconut. Supplemental label for use in Coconut. Supplemental label for use in Coconut. Section III I. Material This Product Will Be Packaging Yes Yes Yes Yes Yes Yes Yes Ye	Section	
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Tool 14th Street, N.W., Suite 1100 Io. EPA Reg. No. Product Name Section II		8. Expedited Review. In accordance with FIFRA Section 3(c)(
Packaging Product Name Product		
Product Name Product Name Product Name Product Name Section II		10.
Section II X Amendment - Explain below Resubmission in response to Agency letter dated Notification - Explain below. Explanation: Use additional page(s) if necessary. (For section it and Section III) Supplemental label for use in Coconut. Section III 1. Material This Product Will Be Packaged In: Child Resistant Packaging Yes X No II 'Yes, No II' Yes, No Various Yes X No II' Yes, No No per I' Yes, No per Package wgt container Certification must be in Affixed To Product Label X Container Yarious Section IV 1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.) Section IV 1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.) Tide Agricultural Regulation Flore Agricultural Received Flore Ag	washington, DC 20005	EPA Reg. No
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Notification - Explain below. Section III	X Amendment - Explain below	
Notification : Explain below. Other - explain below.		
Supplemental label for use in Coconut.	Notification - Explain below.	
Supplemental label for use in Coconut. Section III 1. Material This Product Will Be Packaged In: Child-Resistant Packaging Unit Packaging Yes Yes Yes No. per Yes No. per Unit Package wgt. Submitted. 3. Location of Net Contents Information Assistant Package wgt. Submitted. 4. Size(s) of Retail Container Submitted. 5. Location of Net Contents Information Assistant Package wgt. Standard Paper glued Standard To Product Standard To Product Paper glued To		Other - explain below.
Yes No X No X No Yes X No Plastic Glass Paper Other (Specify) **Certification must be submitted.** **Location of Net Contents Information	. Material This Product Will Be Packaged In:	
Plastic Glass Paper Other (Specify) Package wgt. Paper Other (Specify) Paper Other (Specify) Package wgt. Packag		
If 'Yes,' Unit Package wgt. No. per Package wgt. Unit Packag		Y Plastic
Certification must be Unit Package wgt. Container Package wgt. Container Submitted.		Paper
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Label Scential Various Contabeling accompanying product Manner In Which Label is Affixed To Product Utithograph Paper glued Stenciled Section IV 1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.) Name Dr. Russell P. Schneider Director (202). 7.83–2460 Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law. Signature Manager, Regulatory Affairs Julia Julia Julia Schmedo Schme		1 Occasion of Labot Directions
Section iV 1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.) Name Title Agricultural Regulation Telephone No. (Include Area Complete)		S On Label
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Shela of Selvella Manager, Regulatory Affairs Typed Name 5. Date	I acknowledge that any knowingly false or misleading statement n	ments thereto are true, accurate and complets.
. Typed Name 5. Date		
	. Typed Name 5. Da	may 4, 1994

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1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];

2. Confidential Statement of Formula (EPA Form 8570-4);

Formulator's Exemption Statement (EPA Form 8570-27);

4. Five copies of draft labeling;

5. Three copies of any data submitted;

6. Authorization letter where applicable;

7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission. Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections 1, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant. Block A - Check the appropriate action for which you are submitting this form,

<u>SECTION I</u> - This section must be completed, as applicable, for all registration actions.

- Company/Product Number Insert your Company Number, if one has been assigned by EPA. This number may have been assigned
 to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Kunber.
- 2. EPA Product Manager If known, fill in the name and PM number of the EPA Product Manager.

3. Proposed Classification - Specify the proposed classification of this product,

- 4. Product Name Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
- . 5. Name and Address of Applicant The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. "The name and complete mailing address of such an egent must accompany this application.

6. Expedited Review - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and tabeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency Letter, for notifications to the Agency, for the submission of final printed tabeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. Subject of submission - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

1.35 SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable assendments;

1. Type of Prokinging - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.

Type of Retail Container - Indicate type of container in which product will be marketed.

3. Location of Met Conterts - Specify the net contents of all retail containers for your product:

4. Size(a) of Retail Container - Specify the net contents of all retail containers for your product.
5. Location of Use Directions - Indicate the location of the use directions for your product.

6. Manner in which label is affixed to product - indicate the method product label is attached to retail container.

SECTION IV (Contact Foint) - This Section must be completed for all applications for Registration actions, i.a., new products registration, Lawwission, "me-too," reregistration, etc.

1-5. Self-emlamitery. 6. EPA Use Linky.

Yellow - Applicant copy

1) hours

Rhails A. Schwette. Ph.D.

· White - EPA File Copy (olightal)

United States Environmental Protection Agency

Washington, DC 20460 SEPA Certification with Respect to Citation of Data

Form Approved OMB No. 2070-0060 Approval Expires 11-30-93

Applicants Name and Address	EPA File Symbol/Registration Number
Monsanto Company	. 524-445
700 14th Street, N.W., Suite 1100	Product Name
Washington, DC 20005	Roundup® Herbicide
	Date of Application
·	May 4, 1994

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

- 1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of approprial of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)
- 2. I certify that, for each study cited in support of this application for registration that is an exclusive use study.
 - |x| I am the original submitter*; or
 - I have obtained the written permission of the original data submitter to cite that study.
- 3. I certify that, for each study cited in support of this application for registration that is not an exclusive use study:
 - a. |x| I am the original data submitter*; or
 - I have obtained the written permission of the original data submitter to cite that study; or
 - b. I have notified in writing the companies that have submitted data I have cited to support this application and have offered to: (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)
 - All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)
 - Those companies that have submitted the studies which I have cited (Selective method*).
 - * A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the cite-all method.)

Signature Shula A	Schelle	Name and Title Sheila A. Schuette, Manager, Regulatory		1810mg 4, 19	94
(General Offer to I persons, with regard		y: I hereby offer and agree to the approval of this application	on, to the extent require	other sd. A.	
Signature		Name and Title	Date		184

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

May 4, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup® Herbicide (EPA Reg. No. 524-445)

Supplemental Label for Use in Coconut

Dear Sir.

Enclosed for Agency review and approval are five (5) copies of a supplemental label for use of Roundup herbicide in coconut. A tolerance for glyphosate on coconut was established on September 16, 1987 (52 FR 39410; attached) but the crop has not yet been added to the label.

In the Glyphosate Reregistration Eligibility Decision (RED) Document, the Agency proposes to revoke the tolerance on coconut since there are currently no registered uses of glyphosate for this crop. Rather than lose the tolerance for this minor crop, Monsanto is submitting the attached label.

Monsanto requests that the Agency approve and stamp the enclosed supplemental label. The residue data supporting this use can be found in Accession No. 247004; a complete list of glyphosate data can be found in MRID 43077000, which was submitted to the Agency on December 16, 1993. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed.

May 4, 1994 Page 2

If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D. Manager, Regulatory Affairs

Shila Q. Schuette

(314) 694-7248

cc: R.P. Schneider L.L. Gingerich D.M. Fee-White \$ 3.1804(d). Where any part of the plot or interment expenses has been paid or assumed by a State, any agency or political subdivision of a State, or the employer of the deceased veteran, only the difference between the total amount of such expenses and the amount paid or assumed by any of these agencies or organizations, not to exceed the statutory plot or interment allowance, will be authorized.

(Authority: (38 U.S.C. 903(b))

(3) Amount of the ollowonce. A State or an agency or political subdivision of a State entitled to payment under this paragraph shall be paid the maximum statutory amount as a plot or interment allowance without regard to the actual cost of the plot or interment.

(Authority: 38 U.S.C. 903(b))

12. In § 3.1512 paragraph (e)(2)(ii) is revised and peragraph (e)(2)(iii) is added to read as follows:

§ 3.1612 Monetary allowance in lieu of a Government-bendshed headstone or marker.

[e] * * * *

(2)

(ii) The average actual cost, as determined by the VA, or headstones and markers femished at Government expense for the fiscal year preceding the fiscal year in which the non-Government marker was purchased or the services for adding the veteran's identifying information on an existing headstone or marker were purchased.

(iii) The average actual cost of Government-in-mished headstones and markers during any fiscal year is determined by dividing the sum of the VA's costs during that fiscal year for procurement, wansportation, Monument Service and miscellaneous administration inspection and support staff by the total number of headstones and markers procured by the VA during that fiscal year and rounding to the nearest whole collar amount. The resulting average actual cost is published at 🖮 end of each fiscal year in the "Notices" section of the Federal Register.

(Authority: 38 U.S.C. 906 [d])

[FR Doc. 87-71554 Filed 9-15-87; 8:45 am] BILLING CODE #303-01-M

38 CFR Part 36

Increase in Maximum Permissible Interest Rates on Guaranteed Manufactured Home Loans, Home and Condominium Loans, and Home Improvement Loans; Correction

AGENCY: Veterana Administration. ACTION: Final regulation: correction.

SUMMARY: In the Federal Register of Thursday, September 10, 1987 (52 FR 34218) the Veterans Administration (VA) published increases in maximum interest rates on guaranteed manufactured home units loans, lot loans, and combination memiactured home unit and lot loans. An increase appearing in 38 CFR 36.4311(a) was inadvertently omitted. This document is to correct the text of § 36.4371(a). EFFECTIVE DATE: September 8, 1987.

FOR FURTHER INFORMATION CONTACT: George Moerman, Loan Guzzanty Service (264), Department of Veterans Benefits, Veterans Administration, 810 Vermont Avenue NW, Washington, DC 20420 (202) 233-3042.

Dated: September 11, 1987. Priscilla B. Carey,

Chief, Directives Management Division.

On page 34218 of the Federal Register of September 10, 1987, Volume 52, § 36.4311(a) is correctly revised to read as follows:

§ 36.4311 Interest rates.

(a) Excepting loans granteed or insured pursuant to guaratty or insurance commitments issued by the VA which specify an interest rate in excess of 10 % per centum per annum, effective September 8, 1987, the interest rate on any home manufacted home/ lot loan guaranteed under 35 U.S.C. 1810, or condominium loan, other than a graduated payment mortages: loan, guaranteed or insured wbolly or in part on or after such a date may not exceed 101/2 per centum per annum on the unpaid principal balance 🞏 U.S.C. 1803(c)(1))

[FR Doc. 87-21337 Filed 9-15-57; #45 am] BILLING COOK ATTO-01-M

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 180

[PP 2F2580/P911; FEL-3250-4]

Pesticide Tolerance for Glyphosate

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

BUMMARY: This rule establishes a tolerance for the combined residues of the herbicide glyphosate [N-(phosphonomethyl)glycine] and its metabolite aminomethylphosphonic and (AMPA) in or on coconut at 0.1 part per million (ppm). The regulation was requested by Monsanto Co. and establishes the maximum permissible level for residues of the herbicide in or on coconut

EFFECTIVE DATE: September 18, 1987. ADDRESS: Written objections may be submitted to the: Hearing Clerk (A-110). Environmental Protection Agency, Room 3708, 401 M Street, SW., Washington, DC 20460.

FOR FURTHER INFORMATION CONTACT: By mail:

Robert J. Taylor, Product Manager (PM) 25, Registration Division (TS-767C). Office of Pesticide Programs, Environmental Protection Agency, 401 M Street SW., Washington, DC 20460. Office location and telephone number.

Room 412, CM#2, 1921 Jefferson Davis Highway, Arlington, VA 22207. (703)-557-1800.

SUPPLEMENTARY INFORMATION: EPA issued a notice, published in the Federal Register of June 23, 1982 (47 FR 27126), which announced that Monsanto Co., 1101 17th Street, NW., Washington, DC 20036, had submitted a pesticide petition. PP 2F2080, to EPA proposing the establishment of a tolerance for combined residues of the herbicide glyphosate [N-

[phosphonomethyl]glycine] and its metabolite aminomethylphosphonic acid (AMPA) in or on the raw agricultural commodity copra at 1.0 ppm. Food additive tolerances were proposed under food additive petition (FAP) 2H5339 for the combined residues of the herbicide and its metabolite on coconm oil, desiccated coconut, and copra meal at 0.1 ppm.

There were no comments received in response to the notice of filing.

The petitioner subsequently amended the petition to propose the establishment of a tolerance for the combined residues of the herbicide glyphosate and its metabolite aminomethylphosphonic acid in or on the raw agricultural commodity (RAC) coconul at 0.1 ppm. The food additive tolerances or, coconut oil, desiccated coconut, and copra meal were withdrawn.

The date submitted in the petition and other relevant material have been evaluated. The data evaluated include a 2-year oncogenicity study in mice fed

dosages of 0, 150, 750, and 4,500 milligrams/kilogram/day (mg/kg/day); a chronic feeding/ oncogenicity study in rate fed dosages of 0, 3, 10, and 31 mg/ kg/day with no oncogenic effects observed under the conditions of the study at dose levels up to and including 31 mg/kg/day (highest dose tested (HDT)) and a systemic NOEL greater than 31 mg/kg/day; a 1-year chronic feeding study in dogs fed dosage levels of 0, 20, 100, and 500 mg/kg/day with a NOEL of 500 mg/kg/day; a teratology study in rate fed dosage levels of 0. 300. 1.000, and 3,500 mg/kg/day with no teratogenic effects occurring up to and including 3,500 mg/kg/day (HDT). maternal and fetotoxic NOELs of 1,000 mg/kg/day; a teratology study in rabbits fed dosage levels of 0, 75, 175, and 350 ing/kg/day with no teratogenic effects. occurring up to and including 350 mg/ kg/day (HDT), a maternal NOEL of 175 mg/kg/day, and a fetotoxic NOEL of 350 mg/kg/day (HDT); a three-generation reproduction study in rats fed dosage levels of 0, 3, 10, and 30 mg/kg/day with a NOEL of 10 mg/kg/day; a mutagenicity test-chromosomal aberration in vitro (no aberrations in Chinese hamster ovary cells were caused with and without S-9 activation); a mutagenicity test—DNA repair in rat hepatocytes (negative); a mutacenic test—in vivo bone marrow cytogenic in rats (negative); a mutagenicity test-recassay with B. subtilis (negative); a mutagenicity test—reverse mutation with S. typhimurium (negative); a mutagenicity (Ames) test with 5.

(negative).

The acceptable daily intake (ADI) based on the three-generation rat reproduction study (NOEL of 10 mg/kg/day) and using a hundredfold safety factor is calculated to be 0.1 mg/kg/day. The theoretical maximum residual contribution (TMRC) for published tolerances and unpublished bm approved tolerances is 0.0047 mg/kg/day. The current action will commibute 0.000001 mg/kg/day to the TMRC and will not increase the percentage of the ADI utilized. Published tolerances utilize 4.65 percent of the ADI.

Typhimurium (negative): and a dominant

lethal mutagenicity test in mice

Desirable data lacking are a repeat of the mouse and rat oncogenicity studies. There are currently no actions pending against the continued registration of this pesticide. No detectable residues of Nonitrosoglyphosate, a contaminant of Siyphosate, are expected to be present in the commodities for which the tolerance is sought. The oncogenic potential of glyphosate is not fully

understood. Because of the equivocal (uncertain) nature of the oncogenic response in mice, the Agency referred the issue to the Federal Insecticide. Fungicide, and Rodenticide Act (FIFRA) Science Advisory Panel (SAP) for a "Weight-of-Evidence" classification. After reviewing all available evidence. the SAP proposed that glyphosate be classified as a "Class D Oncogen" or having "inadequate animal evidence of oncogenicity," and that there be a Data Call-In for further studies in rats and/or mice to clarify unresolved questions. After rereview of all available information, the Agency decided to classify glyphosate as a "Class D Oncogen" and also to request a repeat of the mouse oncogenicity study. Also, because of the large difference between the high dose tested in the rat and mouse oncogenicity studies, the rat oncogenicity study was rereviewed. The rereview indicated that a maximum tolerated dose (MTD) may not have been reached in that study. Therefore. the Agency decided to also request a repeat of the rat oncogenicity study atdoses high enough to read an MTD. The Agency's policy bas been to issue new use registrations in which the resulting change in TMRC is less than 1 percent: however, any significant new use registrations will be handled on a caseby-case basis and will not be issoed until issues in the Glyphosate Registration Standard have been resolved, Monsanto Co. has been notified of these conclusions and deficiencies by the Glyphosate Registration Standard dated June 30, 1986.

The nature of the residue is adequately understood, and an adequate analytical method (gas chromatography with a phosphorous-specific flame photometric detector) is available for enforcement purposes. Existing tolerances will accommodate residues occurring in meat fat and meat byproducts of cattle, horses, hogs, sheep, and goats and milk, poultry, or eggs resulting from this use.

Based on the information considered by the Agency, it is concluded that the tolerance established by amending 40 CFR Part 180 will protect the public health. Therefore, the tolerance is established as set forth below.

Any person adversely affected by this regulation may, within 30 days after the date of publication in the Federal Register, file written objections with the Hearing Clerk, Environmental Protection Agency, Room M-3708 (A-110), 401 M Street, SW., Washington, DC 20480. Such objections should be submitted in

quintuplicate and specify the provisions of the regulations deemed objectionable and the grounds for the objections. If a hearing is requested, the objections must state the issues for the hearing. A bearing will be granted if the objections are legally sufficient to justify the relief sought.

THE PROPERTY OF THE PROPERTY O

The Office of Management and Budget (OMB) has exempted this regulation from OMB requirements of Executive Order 12291 pursuant to section 8(b) of that Order.

Pursuant to the requirements of the Regulatory Flexibility Act (Pub. L. 98-35-1. 94 Stat. 1164, 5 U.S.C. 610 through 612), the Administrator has determined that regulations establishing new tolerances or raising tolerance levels or establishing exemptions from tolerance requirements do not have a significant economic impact on a substantial number of small entities. A certification statement to this effect was published in the Federal Register of May 4, 1981 (46 FR 24950).

(Sec. 408(d)(2), 68 Stat. 512 (21 U.S.C. 3+5a(d)(2))

List of Subjects in 40 CFR Part 180

Administrative practice and procedure, Agricultural commodities. Pesticides and pests.

Dated: September 1, 1987.

Douglas D. Campt,

Director, Office of Pesticide Programs.

Therefore, 40 CFR Part 180 is amended follows:

PART 180-[AMENDED]

1. The authority citation for Part 180 cootinues to read as follows:

Authority: 21 U.S.C. 346a.

2. In § 180.364, paragraph (a) is amended by adding and alphabetically inserting the listing for coconut, to read as follows:

§ 180,364 Glyphosate; tolerance for residues.

(a) ' '

Controller.						Perta per melion
-				•	•	
Cocons	·	<u> </u>			•	0

[FR Doc. 87~20909 Filed 9~15~5/: 8:45 am]



SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE US DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.

ROUNDUP®
Herbicide by Monsanto

EPA Reg. No. 524-445

ACCEPTED MAY | 8 |994

Under the Federal Insections.
Pungleide, and Rodenticide Est,
as amended, for the position
registered under
EPA Reg. No. 24-445

ROUNDUP HERBICIDE FOR USE IN COCONUTS

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night (314) 694-4000.

ORoundup is a registered trademark of Mondanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup herbicide for essential product performance information.

RECOMMENDATIONS

This product may be applied to control annual and perennial weeds listeD on this label in established plantings of coconut and for site preparation prior to transplanting coconut trees.

Applications may be made with boom equipment, CDA, snielded sprayers, hand-held and high-volume wands, lances, orchard guns, or with wiper equipment.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT OR OTHER PARTS OF TREES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

AVOID PAINTING OUT STUMPS WITH THIS PRODUCT AS INJURY RESULTING FROM ROOT GRAFTING MAY OCCUR IN ADJACENT TREES.

Read the "Limit of Warranty and Liability" in the label booklet for Roundup herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

©Monsanto Company 1994

MAP

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

Dr. Sheila A. Schuette Monsanto Company 700 14th St. N.W., Suite 1100 Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Add Use on Salsify Roundup Herbicide EPA Reg. No. 524-445

Your submission dated May 4, 1994

The amendment referred to above, submitted in connection with registration under FIFRA sec. 3(c)(7)(A), is acceptable provided that you:

- 1. Submit and/or cited all data or other material required for registration/reregistration of your product under FIFRA sec. 3(c)(5) or FIFRA section 4 when the Agency requires all registrants of similar products to submit such data.
- 2. Submit five (5) copies of your final printed labeling incorporating the following changes before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Sincerely yours,

Robert J. Taylor Product Manager 25 Fungicide-Herbicide Branch Registration Division (97505C)

enclosure

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. . . Washington, D.C. 20005

May 4, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup® Herbicide (EPA Reg. No. 524-445)

Supplemental Label for Use in Salsify

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of a supplemental label for use of Roundup herbicide in salsify. A tolerance for glyphosate on salsify was established on March 29, 1989 (54 FR 12911; attached) but the crop has not yet been added to the label.

In the Glyphosate Reregistration Eligibility Decision (RED) Document, the Agency proposes to revoke the tolerance on salsify since there are currently no registered uses of glyphosate for this crop. Rather than lose the tolerance for this minor crop, Monsanto is submitting the attached label.

Monsanto requests that the Agency approve and stamp the enclosed supplemental label. A list of glyphosate data supporting this application can be found in MRID 43077000, which was submitted to the Agency on December 16, 1993. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed.

May 4, 1994 Page 2

If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D. Manager, Regulatory Affairs

Shula a Schuette

(314) 694-7248

cc: R.P. Schneider

L.L. Gingerich

D.M. Fee-White

12911

Federal Building, Boston, MA 02203, [617] 565-3250; FTS 835-3250.

SUPPLEMENTARY INFORMATION: The States of Connecticut, New Hampshire, and Rhode Island were delegated authority for the General Provisions of the NSPS and NESHAPs standards and various Subparts of 40 CFR Parts 60 and 61 in letters from EPA dated September 30, 1982; the Commonwealth of Massachusetts was delegated this authority in a similar letter dated lune 25, 1982. These letters detailed the conditions of each delegation, and thereby established a mechanism of automatic delegation of newly promulgated standards when specifically requested by the States. In : addition, the delegation agreements, contained in those letters, provide that authority over future revisions to previously delegated standards will automatically be delegated to the State agencies. In accordance with this mechanism, requests for delegation were submitted to EPA and subsequently granted. The purpose of these delegations is to shift primary program responsibility for the newly promulgated Subparts of 40 CFR Parts 60 and 61 from EPA to State governments. Some States do not have full authority over the programs; limitations are noted where appropriate.

Delegations for each State are listed

below:

State of Connecticut

Limitations: None, full authority delegated.

Delegations: Subpart of 40 CFR Part 60 as follows: BBB (Rubber Tire Manufacturing), effective November 17, 1988, TTT (Surface Coating of Plastic Parts for Business Machines), effective November 17, 1988.

State of Massachusetts

Limitotions: None, full authority delegated.

Delegations: Subparts of 40 CFR Part 81 as follows: N (Inorganic Arsenic Emissions from Class Manufacturing Plants), effective November 17, 1988.

State of Naw Hampshire

Limitations: None, full authority delegated.

Delegations: Subpart of 40 CFR Part 60 as follows: BBB (Rubber Tire Manufacturing), effective December 12, 1988, TTT (Surface Coating of Plastic Parts for Business Machines), effective December 12, 1988.

State of Rhode Island

Limitations: Administrative delegation only.

Delegations: Subpart of 40 CFR Part 60 as follows: BBB (Rubber Tire Manufacturing), effective February 15, 1989, TTT (Surface Coating of Plastic Parts for Business Machines), effective February 15, 1989.

Effective immediately, all applications, reports, and other correspondence required under these NSPS and NESHAPs standards should be sent to the above State addresses, as well as to the EPA.

The Office of Management and Budget has exempted this rule from the requirements of section 3 of Executive Order 12291.

Authority: Secs. 111(c) and 112(d) of the Clean Air Act. 42 U.S.C. 7411(c) and 7412(d).

List of Subjects in 46 CFR Parts 60 and 61

Air pollution control, Arsenic-glass manufacturing, Plastic parts for business machines, Rubber tire manufacturing.

Date: March 3, 1989.

Paul Keough.

Acting Regional Administrator, Region I. [FR Doc. 89–7420 Filed 3–28–89; 8:45 am] BILLING CODE 8560-50-M

40 CFR Part 180

[PP 8E3676/R1015; FRL-3544-8]

Pesticide Tolerances for Glyphosate

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This rule establishes a tolerance for the combined residues of the herbicide glyphosate and its metabolite in or on the raw agricultural commodity crop group bulb vegetables. This regulation to establish a maximum permissible level for residues of the herbicide in or on the crop group commodities was requested in a petition submitted by the Interregional Research Project No. 4 (IR-4).

EFFECTIVE DATE: March 29, 1989.

ADDRESS: Written objections, identified by the document control number, [PP 6E3676/R1015], may be submitted to: Public Docket and Freedom of Information Section, Environmental Protection Agency, Room 3708, 401 M Street SW., Washington, DC 20460.

FOR FURTHER INFORMATION CONTACT: By mail: Hoyt Jamerson, Emergency Response and Minor Use Section, Registration Division [TS-787C], Environmental Protection Agency, 401 M Street SW., Washington, DC 20460. Office location and telephone number: Room 716C, CM #2, 1921 Jefferson Davis Highway, Arlington, VA 22202, (703)-557-2310.

issued a proposed rule, published in the Federal Register of February 8, 1989 (54 FR 6151), in which it was announced that the Interregional Research Project No. 4 (IR-4), New Jersey Agricultural Experiment Station, P.O. Box 231, Rutgers University, New Brunswick, NJ 68903, had submitted pesticide petition (PP) 6E3678 to EPA on behalf of Dr. Robert H. Kupelian, National Director, IR-4 Project, and the Agricultural Experiment Stations of California, Florida, Michigan, and New York.

The petition requested that the Administrator, pursuant to section 408(e) of the Federal Food, Drug, and Cosmetic Act, propose the establishment of a tolerance for the combined residues of the herbicide glyphosate (N-{phosphonomethyl) glycine), and its metabolite aminomethylphosphonic acid (AMPA) in or on the raw agricultural commodity onions at 0.2 part per million (ppm). The petition was later amended to propose a tolerance for residues of glyphosate at 0.2 ppm in or on commodities of the bulb vegetable crop group, which consists of the raw agricultural commodities garlic, leeks, onions (green and dry bulb), and shallots.

The tolerance for the bulb vegetable crop group replaces, in part, the existing glyphosate tolerance for root crop vegetables at 0.2 ppm. The root crop vegetable group consists of the raw agricultural commodities garlic, leeks, onions, and shallots, as well as beets, carrots, chickory, horseradish, Jerusalem artichokes, parsnips, potatoes, radish, rutabagas, salsify, sugarbeets, sweet potatoes, turnips, and yams.

The term "root crop vegetables" is a crop group designation that was used prior to the revision of 40 CFR 180.34(f). the Crop Group Regulations, which was published in the Federal Register of June 29, 1983 (48 FR 29855). Establishment of the tolerance for bulb vegetables allows the deletion of the existing glyphosate tolerance for root crop vegetables. Clyphosate tolerances for the remaining raw agricultural commodities from the root crop vegetable crop group toar do not belong to the bulb vegetable crup. group are retained by listing individual tolerances at 0.2 ppm for the following commodities: beets, currots, chickory, horseradish, Jerusalem artichokea paranips, potatoes, radishes, rutabagas, salsify, sugar books, sweet potatoes, turnips, and yems.

There were no comments or requests for referral to an advisory committee received in response to the proposed rule.

The data submitted in the petition and all other relevant material have been evaluated and discussed in the proposed rule. Based on the data and information considered, the Agency concludes that the tolerances will protect the public bealth. Therefore, the tolerances are established as set forth below.

Any person adversely affected by this regulation may, within 30 days after publication of this document in the Federal Register, file written objections with the Hearing Clerk, at the address given above. Such objections should specify the provisions of the regulation deemed objectionable and the grounds for the objections. A hearing will be granted if the objections are supported by grounds legally sufficient to justify the relief sought.

The Office of Management and Budget has exempted this rule from the requirements of section 3 of Executive Order 12291.

Pursuant to the requirements of the Regulatory Flexibility Act (Pub. L. 96-354, 94 Stat. 1164, 5 U.S.C. 601-612), the Administrator has determined that regulations establishing new tolerances or raising tolerance levels or establishing exemptions from tolerance requirements do not have a significant economic impact on a substantial number of small entities. A certification statement to this effect was published in the Federal Register of May 4, 1981 (48 FR 24950).

List of Subjects in 40 CFR Part 180

Administrative practice and procedure, Agricultural commodities, Pesticides and pests, Reporting and recordkeeping requirements.

Dated: March 15, 1989. Douglas D. Campt,

Director, Office of Pesticide Programs.

Therefore, 40 CFR Part 180 is amended as follows:

PART 180-[AMENDED]

1. The authority citation for Part 180 continues to read as follows:

Authority: 21 U.S.C. 346a.

2. Section 180,364 is amended by removing the existing entry for root crop vegetable group and by adding and alphabetically inserting the commodity crop group bulb vegetables and the raw agricultural commodities beets, carrots, chickory, horseradish, Jerusalem artichokes, parsnips, potatoes, radishes. rutabagas, salsify, sugar beets, sweet

potatoes, turnips, and yams, to read as follows:

§ 180.364 Glyphosats; tolerances for residues.

(a) · · ·

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[FR Doc. 89-7421 Filed 3-28-89: 8:45 am] BILLING CODE 6560-50-M

40 CFR Part 372

[OPTS-400013A; FRL-3493-9]

Melamine; Toxic Chemical Reporting: Community Right-To-Know

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: EPA is deleting melamine from the list of toxic chemicals under section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1988 (SARA). Title III of SARA is also referred to as the Emergency Planning and Community Right-to-Know Act. By promulgating this rule, EPA is relieving facilities of their obligation to report releases of melamine that occur during the 1988 calendar year, and releases that will occur in the future. This relief applies only to reporting requirements. under section 313 of Title III of SARA. DATE: This rule is effective March 29.

FOR FURTHER INFORMATION CONTACT: Robert Israel, Acting Petition Coordinator, Emergency Planning and Community Right-to-Know Hotline, Environmental Protection Agency, 401 M Street, SW., Mail Stop OS-120. Washington, DC 20480. Toll free: 800-535-0202 in Washington DC and Alaska, (202) 479-2449.

SUPPLEMENTARY INFORMATION:

I. Description of Petition and Regulatory History

The Agency received a section 313(e) petition to delete melamine, CAS No. 108-78-1, from the list of toxic chemicals in 40 CFR 372.65. The petition from Melamine Chemicals, Inc. was received on October 7, 1987, and at the request of the submitter, the statutory timeframe for response was suspended for 69 days. After reviewing the petition, EPA published the proposed rule to grant the petition in the Federal Register of June 20, 1988 (53 FR 23128). After reviewing the petition and additional related information, EPA concluded that melamine did not meet the listing criteria related to acute human health effects, chronic health effects, or environmental toxicity. These criteria for listing chemicals are in section 313(d) of Title III of SARA. It is the Agency's determination that available data do not demonstrate that melamine causes or can reasonably be anticipated to cause significant adverse health or environmental effects. This determination is consistent with EPA's prior determination under the Federal Insecticide, Fungicide, and Rodenticide. Act (FIFRA) that the oncogenic risk posed by melamine, the major metabolite of the insect growth regulator cyromazine, is nonexistent or, at worst, extremely low (50 FR 20373). While release to the environment is possible, EPA has estimated that typical emissions will not cause exposures of concern. The proposed rule contains additional information on the petition process under section 313 of Title III of SARA, as well as, a detailed summary of the Agency's review of the petition.

EPA received two comments concurring with the proposed rule to delete melamine. The comments were from American Cyanamid Company and Browning-Ferris Industries: Based upon evaluation of the petition, available toxicity and exposure information, and the comments, EPA affirms its determination that melamine does not meet any of the criteria listed in section 313(d). Therefore, EPA is deleting melamine from the list of chemicals subject to reporting under section 313 of Title III of SARA.

The State St

Please read instructions on reverse before completing form.	Form Approved. OMB No. 2070-0060, Approval expires 11-30-93
(A) United States Environmental	
Office of Pesticide Progra Washington, DC Application for	20460 X Amendment
Application for	Pesticide: Other 207619
Secti	on I
1. Company/Product Number 524-445	2: EPA Product Manager 3. Proposed Classification
	Robert J. Taylor X None Restricted
4. Company/Product (Name)	PM# 25 Rone Hestricted
Roundup® Herbicide	The state of the s
5. Name and Address of Applicant (Include ZIP Code)	 Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling
Monsanto Company 700 14th Street, N.W., Suite 1100	to:
Washington, DC 20005	EPA Reg. No
Check if this is a new address	Product Name
Section	n
X Amendment - Explain below	Final printed labels in response to Agency letter dated
Resubmission in response to Agency letter dated	"Me Too" Application.
Notification - Explain below.	Other - explain below.
Explanation: Use additional page(s) if necessary. (For section I	and Section II.)
Supplemental label for use	in Salsify
	·
Section	111
Material This Product Will Be Packaged In:	
Child-Resistant Packaging Unit Packaging V	Vater Soluble Packaging 2. Type of Container
Yes* Yes	Yes Metal
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6. Manner In Which Label Is Affixed To Product Lithograp Paper glu	
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	individual to be contacted, if necessary, to process this application.) Agricultural Regulation Telephone No. (Include Area Code)
Dr. Russell P. Schneider	Agricultural Regulation Director Telephone No. (Include Area Code) (202) 733-2460
	1 (202) 733-24.00
Certification	6. Date Application
i certify that the statements I have made on this form and all attact i acknowledge that any knowingly false or misleading statement both under applicable law.	chments thereto are true, accurate and complete. phay be punishable by fine or imprisonment or (Stamped)
2. Signature 3. T	itle
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4. Typed Name 5. D	
Sheila A. Schuette, Ph.D.	. • •
,	may 4, 1994

PAPERWORK REDUCTION ACT MOTICE and INSTRUCTIONS

PAPERNORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SV, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];

Confidential Statement of Formula (EPA Form 8570-4);
 Formulator's Exemption Statement (EPA Form 8570-27);

4. Five copies of draft labeling;

5. Three copies of any data submitted;

6. Authorization letter where applicable;

Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a modilup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup tabels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission. Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant. Block A - Check the appropriate action for which you are submitting this form.

<u>SECTION I</u> - This section must be completed, as applicable, for all registration actions.

- 1. Company/Product Number Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Walber.
- 2. EPA Product Manager If known, fill in the name and PM number of the EPA Product Manager.

3. Proposed Classification - Specify the proposed classification of this product.

4. Product Name - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.

5. Heme and Address of Applicant - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete smiling address of such an agent must accompany this application.

6. Expedited Review - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to secret the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency Letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. Subject of mulmission - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "smend the Confidential Statement of Formula by..."; "reregistration submission"; general Label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. Type of Pretaging - Check the appropriate block if your product will be puckaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.

2. Type of Retail Containsr - Indicate type of container in which product will be marketed.
3. Location of Net Contents - Specify the net contents of all retail containers for your product. Size(s) of Retail Container - Specify the net contents of all retail containers for your product.
 Location of Use Directions - Indicate the location of the use directions for your product.
 Hanner in which label in effixed to product - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resultaission, "me-too," reregistration, etc...

1-5. Self-explanatory. 6. EPA Use Dhily."

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United States Environmental Protection Agency

Washington, DC 20460

Form Approved OMB No. 2070-0060 Approve! Expires 11-30-93

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SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP HERBICIDE BEFORE PROCEEDING WITH THE U! DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.

ROUNDUP® Herbicide by Monsanto

EPA Reg. No. 524-445

ACCEPTED

MAY | 8 | 1994

Under the Faderal Inserticide.
Facility to, and Redon icide Act, as a munifact for the predicte registered under EPA Reg. No. 674-445

ROUNDUP HERBICIDE FOR SALSIFY

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night (314) 694-4000.

PRoundup is a registered trademark of Honsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINC SEVERE INJURY OR DESTRUCTION MAY RESULT.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup herbicide for essential product performance information.

RECOMMENDATIONS

This product may be used to control annual and perennial weeds listed on this label prior to the emergence of salsify.

See the "WEEDS CONTROLLED" section of the label booklet for Roundup herbicide for specific rates and stages of growth for the weed species present at the time of application.

Read the "Limit of Warranty and Liability" in the label booklet for Roundu herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once

©Monsanto Company 1994

MAP

MONSANTO COMPANY AGRICULTURAL PRODUCTS ST. LOUIS, MISSOURI 63167 Roundup (R) Herbicide by Monsanto

Complete Directions for Use

EPA Reg. No. 524-445

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

(R) Roundup is a registered trademark of Monsanto Company.

1994-X

A-000.01

Read each of these sections of this label for essential product performance information.

USE THESE CONVENIENT SECTION MARKERS.

GENERAL INFORMATION

MIXING, ADDITIVES AND APPLICATION
INSTRUCTIONS
WEEDS CONTROLLED
NONCROP USES
CROPPING SYSTEMS
MINIMUM TILLAGE
TREE AND VINE CROPS

as amended, for the pesticide registered under SUY-YYS EPA Reg. No. SUY-YYS

ACCEPTED

APR - 6 1994

Under the Federal Insectivide, Fungicide, and Redenicide Act,

Use only according to label instructions.

Read the entire label before using this product.

Read ''LIMIT OF WARRANTY AND LIABILITY'' before buying or using. If terms are not acceptable, return at once unopened.

REFORMULATION IS PROHIBITED. SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

LIMIT OF WARRANTY AND LIABILITY

(Not-applicable to consumer applications applied by the homeowner for noncommercial purposes as permitted by the supplemental labeling for 1-quart containers.)

This Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet (''Directions'') when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

Buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

(INDEX PAGES)

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Keep out of reach of children.

WARNING! AVISO

Si usted no entience la etiqueta, busque a alguien para que se la explique a usted en detalle (if you do not understand the label) find someone to explain it to you in detail.

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY. HARMFUL IF SWALLOWED OR INHALED.

Do not get in eyes or on clothing.

Wear goggles or face-shield.

Avoid breathing vapor or spray mist.

Wash thoroughly with soap and water after handling.

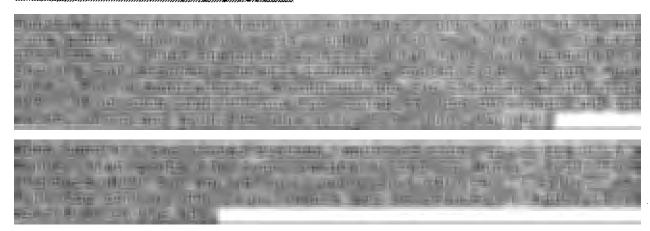
Remove contaminated clothing and wash before reuse.

FIRST AID: IF IN EYES, immediately hold eyelids open and flush with plenty of water for at least 15 minutes. Get medical attention.

IF INHALED, Remove individual to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

IF SWALLOWED, This product will cause gastrointestinal tract irritation. Immediately dilute by swallowing water or milk. Get medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN INCONSCIOUS PERSON.

Personal Protective Equipment



User Seizevi Kecommenderavisa

Users should

- Wash hands before eating drinking, thewing gum, using tobacco, or using the toxiet.
- Remove clothing immediately if pesticide gets inside;
 Then wash thoroughly and put on clean clothing.

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

*Contains 480 grams per litre or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per litre or 3 pounds per U.S. gallon of the acid, glyphosate.

This product is protected by U.S. Patent No. 4,405,531. Other patents pending. No license granted under any non-U.S. patent(s).

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. For any requirements specific to your State or Tribe consult the agency responsible for pesticide requisitions.

Agricultural Use Requirements



Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the erea during application.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants soil or water is coveralls, waterproof gloves, shoes plus socks, and protective eyewear.

Non-Adracultural Use Requirements



Reep people and pets off treated areas until spray Jolution has dried to prevent transfer of this product on a desirable vegetation.

For more product information, call toll-free 1-800-332-3111.

Storage and Disposal

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

See container label for STORAGE AND DISPOSAL instructions.

GENERAL INFORMATION

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT EXCEPT UNDER CONDITIONS AS SPECIFIED WITHIN THIS LABEL.

This product, a water soluble liquid, mixes readily with water to be applied as a foliar spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field-type sprayers after dilution and thorough mixing with water in accordance with label instructions.

This product moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds may not occur for 7 days or more. Extremely cool or cloudy weather following treatment may slow activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above-ground growth and deterioration of underground plant parts.

Unless otherwise specified on this label, delay application until vegetation has emerged and reached the stages described for control of such vegetation under the ''WEEDS CONTROLLED'' section of this label. Unemerged plants arising from unattached underground rhizomes or root stocks of perennials will not be affected by the herbicide and will continue to grow. For this reason, best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per acre within the recommended range when (1) weed growth is heavy or dense, or (2) weeds are growing in an undisturbed (noncultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily

covered with dust.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed, or cut, and have not been allowed to regrow to the recommended stage for treatment.

Rainfall or irrigation occurring within 6 hours after application may reduce effectiveness. Heavy rainfall or irrigation within 2 hours after application may wash the chemical off the foliage and a repeat treatment may be required.

This product does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly recommended in this labeling. Mixing this product with herbicides or other materials not recommended on this label may result in reduced performance.

For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

Keep people and pets off treated areas until spray solution has dried.

DOMESTIC ANIMALS: This product is considered to be relatively nontoxic to dogs and other domestic animals; however, ingestion of this product or large amounts of freshly sprayed vegetation may result in temporary gastrointestinal irritation (vomiting, diarrhea, colic, etc.). If such symptoms are observed, provide the animal with plenty of fluids to prevent dehydration. Call a veterinarian if symptoms persist for more than 24 hours.

ATTENTION

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of injury occurring from the use of this product is greatest when winds are gusty or in excess of 5 miles per hour or when other conditions, including lesser wind velocities, will allow spray drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely

to drift. AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.

NOTE: Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES. DO NOT APPLY WHEN WIND OR OTHER CONDITIONS FAVOR DRIFT. HAND-GUN APPLICATIONS SHOULD BE PROPERLY DIRECTED TO AVOID SPRAYING DESIRABLE PLANTS. NOTE: REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

MIXING

This product mixes readily with water. Mix spray solutions of this product as follows: Fill the mixing or spray tank with the required amount of water. Add the recommended amount of this product (see the ''DIRECTIONS FOR USE'' and ''WEEDS CONTROLLED'' sections of this label) near the end of the filling process and mix well. Remove hose from tank immediately after filling to avoid siphoning back into the carrier source. During mixing and application, foaming of the spray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, terminate by-pass and return lines at the bottom of the tank and, if needed, use an approved anti-foam or defoaming agent.

TANK MIXTURES

Always predetermine the compatibility of labeled tank mixtures of this product with water carrier by mixing small proportional quantities in advance.

Mix labeled tank mixtures of this product with water as follows:

- Place a 20 to 35 mesh screen or wetting basket over filling port.
- 2. Through the screen, fill the spray tank one-half full with water and start agitation.
- If a wettable powder is used, make a slurry with the water carrier, and add it SLOWLY through the screen into the tank. Continue agitation.

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- 4. If a flowable formulation is used, premix one part flowable with one part water. Add diluted mixture SLOWLY through the screen into the tank. Continue agitation.
- 5. If an emulsifiable concentrate formulation is used, premix one part emulsifiable concentrate with two parts water. Add diluted mixture slowly through the screen into the tank. Continue agitation.
- 6. Continue filling the spray tank with water and add the required amount of this product near the end of the filling process.
- 7. Where nonionic surfactant is recommended, add this to the spray tank before completing the filling process.
- 8. Add individual formulations to the spray tank as follows: wettable powder, flowable, emulsifiable concentrate, drift control additive, water soluble liquid followed by surfactant.

Maintain good agitation at all times until the contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed.

Keep by-pass line on or near bottom of tank to minimize foaming. Screen size in nozzle or line strainers should be no finer than 50 mesh. Carefully select proper nozzle to avoid spraying a fine mist. For best results with conventional ground application equipment, use flat fan nozzles.

Clean sprayer and parts immediately after using this product by thoroughly flushing with water.

ADDITIVES

SURFACTANTS

Nonionic surfactants which are labeled for use with herbicides may be used. Do not reduce rates of this product when adding surfactant. When adding additional surfactant, use 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration (4 quarts per 100 gallons of spray solution) for those surfactants containing less than 70 percent active ingredient. Read and carefully observe surfactant cautionary statements and other information appearing on the surfactant label.

AMMONIUM SULFATE

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product, and this product plus 2,4-D, Banvel™ or residual herbicide tank mixtures on annual and perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Low-quality ammonium sulfate may contain material that will not readily dissolve, which could result in nozzle tip plugging. To determine quality, perform a jar test by adding 1/3 cup of ammonium sulfate to 1 gallon of water and agitate for 1 minute. If undissolved sediment is observed, predissolve the ammonium sulfate in water and filter prior to addition to the spray tank. If ammonium sulfate is added directly to the spray tank, add slowly with agitation. Adding too quickly may clog outlet line. Ensure that ammonium sulfate is completely dissolved in the spray tank before adding herbicides or surfactant. Thoroughly rinse the spray system with clean water after use to reduce corrosion.

NOTE: The use of ammonium sulfate as an additive does not preclude the need for additional surfactant. Do not use herbicide rates lower than recommended in this label.

COLORANTS OR DYES

Agriculturally-approved colorants or marking dyes may be added to this product. Colorants or dyes used in spray solutions of this product may reduce performance, especially at lower rates or dilutions. Use colorants or dyes according to the manufacturer's recommendations.

APPLICATION EQUIPMENT AND TECHNIQUES

Do not apply this product through any type of irrigation system.

This product may be applied with the following application equipment:

Aerial -- Fixed Wing and Helicopter

Broadcast Spray

Controlled Droplet Applicator (CDA) -- Hand-held or boom-mounted applicators which produce a spray consisting of a narrow range of droplet sizes.

Hand-Held and High-Volume Spray Equipment -- Knapsack and backpack sprayers, pump-up pressure sprayers, handguns, handwands, mistblowers*, lances and other hand-held and motorized spray

equipment used to direct the spray onto weed foliage.

*This product is not registered in California or Arizona for use in mistblowers.

Selective equipment -- Recirculating sprayers, shielded sprayers and wiper applicators.

See the appropriate part of this section for specific instructions and rates of application.

AERIAL EQUIPMENT

Use the recommended rates of this herbicide in 3 to 15 gallons of water per acre unless otherwise specified on this label. See the CONTROLLED'' ''WEEDS section ο£ this label for rates. Unless otherwise specified, do not exceed 1 quart Aerial applications of this product may be made in annual cropping conventional tillage systems, fallow and reduced tillage systems and preharvest applications, silvicultural sites and rights-of-way. Refer to the individual use area sections of this label for recommended volumes and application rates. FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

Avoid direct application to any body of water.

AVOID DRIFT--DO NOT APPLY DURING TON TEVET INVERSION CONDITIONS, WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITION WHICH FAVORS DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Ensure uniform application -- To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during

spraying or from spills. PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE. The maintenance of an organic coating (paint), which meets aerospace specification MIL-C-38413, may prevent corrosion.

This product plus $Oust^{m}$, Banvel or 2,4-D tank mixtures may not be applied by air in California.

BROADCAST EQUIPMENT

For control of annual or perennial weeds listed on this label using broadcast equipment — Use the recommended rates of this product in 3 to 40 gallons of water per acre as a broadcast spray unless otherwise specified on this label. See the ''WEEDS CONTROLLED'' section of this label for specific rates. As density of weeds increases, spray volume should be increased within the recommended range to ensure complete coverage. Carefully select proper nozzle to avoid spraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

CONTROLLED DROPLET APPLICATION (CDA)

The rate of this product applied per acre by vehicle-mounted CDA equipment must not be less than the amount recommended in this label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 3 to 15 gallons of water per acre.

For the control of labeled annual weeds with hand-held CDA units, apply a 20 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 1.5 MPH (1 quart per acre). For the control of labeled perennial weeds, apply a 20 to 40 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 0.75 mph (2 to 4 quarts per acre).

Controlled droplet application equipment produces a spray pattern which is not easily visible. Extreme care must be exercised to avoid spray or drift contacting the foliage or any other green tissue of desirable vegetation, as damage or destruction may result.

HAND-HELD and HIGH-VOLUME EQUIPMENT

Use coarse sprays only.

Mix this product in clean water and apply to foliage of vegetation to be controlled. For applications made on a spray-to-wet basis, spray coverage should be uniform and complete. Do not spray to the point of runoff.

For control of annual weeds listed on this label, apply a 0.5 percent solution of this product plus nonionic surfactant to weeds less than 6 inches in height or runner length. Apply prior to seedhead formation in grass or bud formation in broadleaf weeds. Allow three or more days before tillage or mowing.

For annual weeds over 6 inches tall, or when not using additional surfactant, or unless otherwise specified, use a l percent solution. For best results, use a 2 percent solution on harder-to-control perennials, such as bermudagrass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

When using application methods which result in less than complete coverage, use a 5 percent solution for annual and perennial weeds and a 5 to 10 percent solution for woody brush and trees.

Prepare the desired volume of spray solution by mixing the amount of this product in water as shown in the following table:

Spray Solution

Amount of Roundup

Desired Volume	172%	1%	1 1/2%	2%	5%	10%
1 Gal	2/3 oz	l-1/3 (oz 2 oz	2-2/3 oz	6-1/2 oz	13 oz
25 Gal	1 pt	l qt	1-1/2 qt	2 qt	5 qt	10 qt
100 Gal	2 qt	l gal	1-1/2 gal	2 gal	5 gal	10 gal

2 tablespoons # 1 fluid ounce

For use in knapsack sprayers, it is suggested that the recommended amount of this product be mixed with water in a larger container. Fill sprayer with the mixed solution.

SELECTIVE EQUIPMENT

This product may be applied through a recirculating spray system, a shielded applicator, or a wiper applicator after dilution and

thorough mixing with water to listed weeds growing in any noncrop site specified on this label and only when specifically recommended in cropping systems.

A recirculating spray system directs the spray solution onto weeds growing above desirable vegetation, while spray solution not intercepted by weeds is collected and returned to the spray tank for reuse.

A shielded applicator directs the herbicide solution onto weeds, while shielding desirable vegetation from the herbicide.

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution.

AVOID CONTACT WITH DESIRABLE VEGETATION.

Contact of the herbicide solution with the desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that the lowest spray stream or wiper contact point is at least 2 inches above the desirable vegetation. Droplets, mist, foam, or splatter of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Applications made above the crops should be made when the weeds are a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatment may be necessary.

SHIELDED APPLICATORS

When applied as directed under conditions described for shielded applicators, this product will control those weeds listed in the ''WEEDS CONTROLLED'' section of this label.

Use the following equation to convert from a broadcast rate per acre to a band rate per acre.

Band width		Herbicide		Herbicide
<u>in</u> inches	Х	Broadcast	=	Band RATE
Row width		RATE		per acre
in inchés		per acre		-

Use nozzles that provide uniform coverage within the treated area. Keep shields on shielded sprayers adjusted to protect desirable vegetation. EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT WITH DESIRABLE VEGETATION.

For specific rates of application and instructions for control of various annual and perennial weeds, see the ''WEEDS CONTROLLED'' section of this label.

WIPER APPLICATORS

Wiper applicators are devices that physically wipe appropriate amounts of this product directly onto the weed.

Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Operate this equipment at ground speeds no greater than 5 mph. Performance may be improved by reducing speed in areas of heavy weed infestations to ensure adequate wiper saturation. Better results may be obtained if 2 applications are made in opposite directions.

Avoid leakage or dripping onto desirable vegetation. Adjust height of applicator to ensure adequate contact with weeds. Keep wiping surfaces clean. Be aware that, on sloping ground, the herbicide solution may migrate, causing dripping on the lower end and drying of the wicks on the upper end of a wiper applicator.

Do not use wiper equipment when weeds are wet.

Mix only the amount of solution to be used during a 1-day period, as reduced activity may result from use of leftover solutions. Clean wiper parts immediately after using this product by thoroughly flushing with water.

Do not add surfactant to the herbicide solution.

For Rope or Sponge Wick Applicators -- Mix 1 gallon of this product in 2 gallons of water to prepare a 33 percent solution. Apply this solution to weeds listed in this ''WIPER APPLICATORS'' section.

For Porous-Plastic Applicators -- Solutions ranging from 33 to 100 percent of this product in water may be used in porous-plastic wiper applicators.

When applied as recommended under the conditions described for ''WIPER APPLICATORS'', this product CONTROLS the following weeds:

ANNUAL GRASSES

Corn

Zea mays

Panicum, Texas

Panicum texanum

Rye, common

Secale cereale

Shattercane

Sorghum bicolor

ANNUAL BROADLEAVES

Sicklepod

Cassia obtusifolia

Spanishneedles

Bidens bipinnata

Starbur, bristly

Acanthospermum hispidum

When applied as recommended under the conditions described for ''WIPER APPLICATORS'', this product SUPPRESSES the following weeds:

ANNUAL BROADLEAVES

Beggarweed, Florida

Desmodium tortuosum

Dogfennel

Eupatorium capilliflorium

Pigweed, redroot

Amaranthus retroflexus

Ragweed, common

Ambrosia artemisiifolia

Ragweed, giant

Ambrosia trifida

Sunflower

Helianthus annuus

Thistle, musk

Carduus nutans

Velvetleaf

Abutilon theophrasti

PERENNIAL GRASSES

Bermudagrass

Cynodon dactylon

Guineagrass

Panicum maximum

Johnsongrass

Sorghum halepense

Smutgrass

Sporobolus poiretii

Vaseygrass

Paspalum urvillei

PERENNIAL BROADLEAVES

Dogbane, hemp

Apocynum cannabinum

Milkweed

Ascelepias syriaca

Nightshade, silverleaf

Solanum elaeagnifolium

Thistle, Canada

Cirsium arvense

WEEDS CONTROLLED

This herbicide controls many annual and perennial grasses and broadleaf weeds.

ANNUAL WEEDS

- Apply to actively growing grass and broadleaf weeds.
- Allow at least 3 days after treatment before tillage.
- For maximum agronomic benefit, apply when weeds are 6 inches or less in height.

- To prevent seed production, applications should be made prior to seedhead formation.
- This product does not provide residual control; therefore, delay application until maximum weed emergence. Repeat treatments may be necessary to control later germinating weeds.

LOW-VOLUME BROADCAST APPLICATION (LOW-RATE TECHNOLOGY)

When applied as directed under the conditions described, this product will control the weeds listed below when:

- Water carrier volumes of 3 to 10 gallons per acre for ground applications and 3 to 5 gallons per acre for aerial applications are recommended. (See the ''AERIAL APPLICATION'' section of this label for approved sites.)
- 2. A nonionic surfactant is added at 0.5 to 1 percent by total spray volume. Use 0.5 percent surfactant concentration when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration for those surfactants containing less than 70 percent active ingredient.

NOTE

- The addition of 2 percent dry ammonium sulfate by weight or 17 pounds per 100 gallons of water may increase the performance of this product on annual weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' section of this label.
- Do not tank-mix with soil residual herbicides when using these rates unless otherwise specified.
- For weeds that have been mowed, grazed or cut, allow regrowth to occur prior to treatment.
- Refer to the ''TANK MIXTURES'' portion of this section for control of additional broadleaf weeds.

WEED SPECIES	MAXIMUM HEIGHT/LENGTH	RATE PER ACRE* (Fluid Ounces)
Foxtail Setaria spp.	12"	8 oz.

Barnyardgrass Echinochloa crus-galli	6" (0 to 4" (4 to 6"	12 oz. 16 oz.¹) 24 oz.¹)
Bluegrass, annual Poa annua		•
Brome, downy** Bromus tectorum		•
Mustard, blue Choríspora tenella		
Mustard, tansy Descurainia pinnata	-	
Mustard, tumble Sisymbrium altissimum		
Mustard, wild Sinapis arvensis	•	
Spurry, umbrella Holosteum umbellatum		
Barley Hordeum vulgare	12"	
Rye Secale cereale		
Sandbur, field Cenchrus spp.	•	
Shattercane Sorghum bicolor		
Stinkgrass Eragrostis cilianensis		
Wheat Triticum aestivum	18"	
Morningglory Ipomoea spp.	2"	16 oz.

Sicklepod

Cassia obtusifolia

Bluegrass, bulbous Poa bulbosa

6'

Cheat

Bromus secalinus

Chickweed, common Stellaria media

Chickweed, mouseear Cerastium vulgatum

Corn

Zea mays

Goatgrass, jointed Aegilops cylindrica

Groundsel, common Senecio vulgaris

Henbit

Lamium amplexicaule

Horseweed/Marestail Conyza canadensis

Lambsquarters, common Chenopodium album

Pennycress, field Fanweed Thlaspi arvense

Rocket, London Sisymbrium irio

Ryegrass, Italian
Lolium multiflorum

Shepherdspurse Capsella bursa-pastoris

Spurge, annual Euphorbia spp.

Buttercup

Ranunculus spp.

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12"

Cocklebur

Xanthium strumarium

Crabgrass

Digitaria spp.

Dwarfdandelion

Krigia cespitosa

Falseflax, smallseed

Camelina microcarpa

Foxtail, Carolina

Alopecurus carolinianus

Johnsongrass, seedling

Sorghum halepense

Oats, wild

Avena fatua

Panicum, fall

Panicum dichotomiflorum

Panicum, Texas

Panicum texanum

Pigweed, redroot

Amaranthus retroflexus

Pigweed, smooth

Amaranthus hybridus

Witchgrass

Panicum capillare

Sicklepod

Cassia obtusifolia

3 to 4"

24 oz

Signalgrass, broadleaf

Brachiaria platyphylla

4"

Horseweed/Marestail

Conyza canadensis

7 to 12"

Lambsquarters, common

Chenopodium album

Spurge, annual

Euphorbia spp.

4 11. Rice, red 32 oz. Oryza sativa: Teaweed Sida spinosa Sprangletop Leptochloa spp. 6" 12" Geranium, Carolina Geranium carolinianum Goosegrass Eleusine indica Primrose, cutleaf evening Oenothera laciniate Pusley, Florida Richardia scabra 5 to 12" Sicklepod Cassia obtusifolia Spanishneedles Bidens bipinnata Filaree 12" 48 oz. Erodium spp. Sprangletop

¹Use these rates to control barnyardgrass in Alabama, Arkansas, Mississippi, Missouri, Louisiana and Texas for preplant treatments.

Leptochloa spp.

- * For those rates less than 32 fluid ounces per acre, this product at rates up to 32 fluid ounces per acre may be used where heavy weed densities exist.
- ** For control in no-till systems, use 16 fluid ounces per acre.

TANK MIXTURES

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Roundup plus BANVEL plus NONIONIC SURFACTANT

Roundup plus 2,4-D plus NONIONIC SURFACTANT

DO NOT APPLY BANVEL OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA.

These tank mixtures are recommended for use in fallow and reduced tillage areas only. Follow use directions as given in the ''LOW-VOLUME BROADCAST APPLICATION'' section.

This product plus Banvel or 2,4-D will control the annual grasses and broadleaf weeds listed for this product alone at the indicated heights (except 8 fluid ounces per acre applications), plus the following broadleaf weeds. For those weeds previously listed at 8 fluid ounces of this product alone per acre, use 12 fluid ounces in these tank mixtures.

NOTE: Refer to the specific product labels for crop rotation restrictions and cautionary statements of all products used in tank mixtures. Some crop injury may occur if Banvel is applied within 45 days of planting. The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed species.

Apply 12 to 16 fluid ounces of this product plus 0.25 lb. pound a.i. of Banvel or 0.5 pound a.i. of 2,4-D, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre to control dense populations of the following annual broadleaf weeds when less than the height indicated:

Cocklebur (12")
Xanthium strumarium

Kochia* (6") Kochia scoparia

Lambsquarters (12")
Chenopodium album

Lettuce, prickly (6")
Lactuca serriola

Marestail/Horseweed (6")
Conyza canadensis

Morningglory (6")

Ipomoea spp.

Pigweed, redroot (12")

Amaranthus retroflexus

Pigweed, smooth (12")
Amaranthus hybridus

Thistle, Russian (12")
Salsola kali

*Controlled with Banvel tank mixture only.

Apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre to control the following annual broadleaf weeds when less than 6 inches in height.

Ragweed, common Ambrosia artemisiifolia

Ragweed, giant Ambrosia trifida

Smartweed, Pennsylvania Polygonum pensylvanicum

Velvetleaf
Abutilon theophrasti

HIGH-VOLUME BROADCAST APPLICATIONS

When applied as directed under the conditions described, this product will control the weeds listed below when water carrier volumes are 10 to 40 gallons per acre for ground applications.

Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume. Use 1 quart per acre if weeds are less than 6 inches tall and 1.5 quarts per acre if weeds are over 6 inches tall. If weeds have been mowed, grazed or cut, allow adequate time for new growth to reach recommended stages prior to treatment. These rates will also provide control of weeds listed in the ''LOW-VOLUME BROADCAST APPLICATION'' section.

WEED SPECIES

Balsamapple*
Momordica charantia

Bassia, fivehook
Bassia hyssopifolia

Brome

Bromus spp.

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Fiddleneck

Amsinckia spp.

Fleabane, flaxleaf hairy

Conyza bonariensis

Fleabane

Erigeron spp.

Kochia

Kochia scoparia

Lettuce, prickly

Lactuca serriola

Panicum

Panicum spp.

Ragweed, common

Ambrosia artemisiifolia

Ragweed, giant

Ambrosia trifida

Smartweed, Pennsylvania

Polygonum pensylvanicum

Sowthistle, annual

Sonchus cleraceus

Sunflower

Helianthus annuus

Thistle, Russian

Salsola kali

Velvetleaf

Abutilon theophrasti

PERENNIAL WEEDS

Apply this product as follows to control or destroy most perennial weeds:

NOTE: If weeds have been mowed or tilled, do not treat until plants have resumed active growth and have reached the recommended stages.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Repeat treatments

^{*}Apply with hand-held equipment only.

must be made prior to crop emergence.

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product on perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' section of this label.

When applied as recommended under the conditions described, this product WILL CONTROL the following PERENNIAL WEEDS:

Alfalfa

Medicago sativa

Alligatorweed*

Alternanthera philoxeroides

Anise (fennel) Foeniculum vulgare

Artichoke, Jerusalem
Helianthus tuberosus

Bahiagrass

Paspalum notatum

Bentgrass

Agrostis spp.

Bermudagrass

Cynodon dactylon

Bermudagrass, water (knotgrass)

Paspalum distichum

Bindweed, field

Convolvulus arvensis

Bluegrass, Kentucky

Poa spp.

Blueweed, Texas

Helianthus ciliaris

Brackenfern

Pteridium aquilinum

Bromegrass, smooth

Bromus inermis

Bursage, woollyleaf

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Franseria tomentosa

Canarygrass, reed Phalaris arundinacea

Cattail Typha spp.

Clover, red Trifolium pratense

Clover, white Trifolium repens

Cogongrass
Imperata cylindrica

Dallisgrass Paspalum dilatatum

Dandelion Taraxacum officinale

Dock, curly Rumex crispus

Dogbane, hemp Apocynum cannabinum

Fescues Festuca spp.

Fescue, tall Festuca arundinacea

Guineagrass
Pancium maximum

Horsenettle Solanum carolinense

Horseradish Armoracia rusticana

ice plant Mesembryanthemum/crystal/Unum

Johnsongrass Sorghum halepense

Kikuyugrass Pennisetum clandestinum

Knapweed

Centaurea repens

Lantana

Lantana camara

Lespedeza

Lespedeza sppl

Milkweed

Asclepias spp.

Muhly, wirestem

Muhlenbergia frondonsa

Mullein, common

Verbascum thapsus

Napiergrass

Pennisetum purpureum

Nightshade, silverleaf

Solanum elaeagnifolium

Nutsedge; purple, yellow

Cyperus rotundus Cyperus esculentus

Orchardgrass

Dactylis glomerata

Pampasgrass

Cortaderia jubata spo

Paragrass

Brachiaria mutica

Phragmites*

Phragmites spp.

Poison hemlock

Conium maculatum

Quackgrass

Agropyron repens

Redvine*

Brunnichia ovata

Reed, giant

Arundo donax

Ryegrass, perennial Lolium perenne

Smartweed, swamp
Polygonum coccineum

Spurge, leafy*
Euphorbia esula

Starthistle #ellow Centaurea solstitalis

Sweet potato, wild*
Ipomoea pandurata

Thistle, Canada Cirsium arvense

Thistle artichoke

Timothy
Phleum pratense

Torpedograss*
Panicum repens

Trumpetcreeper*
Campsis radicans

Vaseygrass Paspalum urvillei

Welvetgrass
Hologs spp
Wheatgrass, western
Agropyron smithii

*Partial Control

This product is not registered in California for use on water bermudagrass.

See ''DIRECTIONS FOR USE'' and ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' sections of this label for labeled uses and specific application instructions.

Alfalfa--Apply 1 quart of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make application after the last hay cutting in the fall. Allow alfalfa to regrow to a height of 6 to 8 inches or more prior to treatment. Applications should be followed

with deep tillage at least 7 days after treatment, but before soil freeze-up.

Alligatorweed--Apply 4 quarts of this product per acre or apply a 1.5 percent solution with hand-held equipment to provide partial control. Apply when most of the plants are in bloom. Repeat applications will be required to maintain such control.



Bentgrass—For suppression in grass seed production areas. For ground applications only, apply 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure entire crown area has resumed growth prior to a fall application. Bentgrass should be actively growing and have at least 3 inches of growth. Tillage prior to treatment should be avoided. Tillage 7 to 10 days after application is recommended for best results. Failure to use tillage after treatment may result in unacceptable control.

Bermudagrass--For control, apply 5 quarts of this product per acre. For partial control, apply 3 quarts per acre. Treat when bermudagrass is actively growing and seedheads are present. Retreatment may be necessary to maintain control. Allow 7 or more days after application before tillage.

Bermudagrass, water (knotgrass) -- Apply 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Apply when water bermudagrass is actively growing and 12 to 18 inches in length. Allow 7 or more days before tilling, flushing or flooding the field.

Fall applications only - Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Fallow fields should be tilled prior to application. Apply prior to frost on water bermudagrass that is actively growing and 12 to 18 inches in length. Allow 7 or more days before tillage.

Bindweed, field--For control, apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts east of the Mississippi River. Apply when the weeds are actively growing and are at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Also for control, apply 2 quarts of this product plus 0.5 pound a.i. of Banvel in 10 to 20 gallons of water per acre. At these rates, apply using ground application only.

The following tank mixtures with 2,4-D may be applied using aerial application equipment (except in California) in fallow and reduced tillage systems only.

For suppression on irrigated agricultural land, apply 1 to 2 quarts of this product plus 1 pound a.i. of 2,4-D in 10 to 20 gallons of water per acre with ground equipment only. Applications should be made following harvest or in fall fallow ground when the bindweed is actively growing and the majority of runners are 12 inches or more in length. The use of at least one irrigation will promote active bindweed growth.

For suppression, apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Applications should be delayed until maximum emergence has occurred and when vines are between 6 to 18 inches in length.

In California only, apply 1 to 5 quarts of this product per acre. Actual rate needed for suppression or control will vary within this range depending on local conditions.

For suppression on irrigated land where annual tillage is performed, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing bindweed that has reached a length of 12 inches or greater. Allow maximum weed emergence and runner growth. Do not treat when weeds are under drought stress as good soil moisture is necessary for active growth. Allow 3 or more days after application before tillage.

Bluegrass, Kentucky / Bromegrass, smooth / Orchardgrass--Apply 2 quarts of this product in 10 to 40 gallons of water per acre when the grasses are actively growing and most plants have reached bootto-early seedhead stage of development. For partial control in pasture or hay crop renovation, apply 1 to 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing plants when most have reached 4 to 12 inches in height. Allow 7 or more days after application before tillage.

Orchardgrass (sods going to no-till corn)--Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to orchardgrass that is a minimum of 12 inches tall for spring

applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting. A sequential application of atrazine will be necessary for optimum results.

Blueweed, Texas—Apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts per acre east of the Mississippi River. Apply when weed is actively growing and is at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. New leaf development indicates active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Brackenfern--Apply 3 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment. Apply to fully expanded fronds which are at least 18 inches long.

Bursage, woollyleaf--For control, apply 2 quarts of this product plus 1 pint of Banvel per acre. For partial control, apply 1 quart of this product plus 1 pint of Banvel per acre. Add 0.5 to 1 percent nonionic surfactant by total spray volume and apply in 3 to 20 gallons of water per acre. Apply when plants are producing new active growth which has been initiated by moisture for at least 2 weeks and when plants are at or beyond flowering.

Canarygrass, reed/Timothy / Wheatgrass, western-Apply 2 to 3 quarts of this product per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth. Allow 7 or more days after application before tillage.

Cogongrass—Apply 3 to 5 quarts of this product plus 0.5 to 1 percent nonionic surfactant in 10 to 40 gallons of water per acre. Apply when Cogongrass is at least 18 inches tall and actively growing in late summer or fall. Allow 7 or more days after application before tillage or mowing. Due to uneven stages of growth and the dense nature of vegetation preventing good spray coverage, repeat treatments may be necessary to maintain control.

Dandelion/Dock, curly--Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fluid ounces of this product plus 0.5 pound a.i. 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre.

Dogbane, hemp--Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to

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flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage.

For suppression, apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Delay applications until maximum emergence of dogbane has occurred.

Fescue, tall--Apply 3 quarts of this product in 10 to 40 gallons of water per acre to actively growing plants when most have reached boot-to-early seedhead stage of development.

Fall applications only--Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to fescue in the fall when actively growing and plants have 6 to 12 inches of new growth. Allow 7 or more days after application before tillage. A sequential application of 1 pint per acre of this product plus nonionic surfactant will improve long-term control and control seedlings germinating after fall treatments or the following spring.

Guineagrass--Apply 3 quarts of this product per acre or use a 1 percent solution with hand-held equipment. Apply to actively growing guineagrass when most has reached at least the 7-leaf stage of growth. Ensure thorough coverage when using hand-held equipment. Allow 7 or more days after application before tillage.

Johnsongrass/Ryegrass, perennial—Apply 1 to 3 quarts of this product per acre. In annual cropping systems apply 1 to 2 quarts of this product per acre. Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre. In noncrop, or areas where annual tillage (no-till) is not performed, apply 2 to 3 quarts of this product in 10 to 40 gallons of water per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth or in the fall prior to frost. Allow 7 or more days after application before tillage. Do not tank-mix with residual herbicides when using the 1 quart per acre rate.

For burndown of Johnsongrass, apply 1 pint per acre plus 0.5 to 1 percent nonionic surfactant in 3 to 10 gallons of water per acre before the plants reach a height of 12 inches. For this use, allow at least 3 days after treatment before tillage.

Spot treatment (partial control or suppression) -- Apply a 1 percent

solution of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume when Johnsongrass is 12 to 18 inches in height. Coverage should be uniform and complete.

Kikuyugrass—Apply 2 to 3 quarts of this product per acre. Spray when most kikuyugrass is at least 8 inches in height (3 or 4-leaf stage of growth) and actively growing. Allow 3 or more days after application before tillage.

Knapweed/Horseradish--Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage.

Lantana--Apply this product as a 1 to 1.25 percent solution using hand-held equipment only. Apply to actively growing lantana at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth. Allow 7 or more days after application before tillage.

Milkweed, common--Apply 3 quarts of this product per acre. Apply when actively growing and most of the milkweed has reached the late bud to flower stage of growth. Following small grain harvest or mowing, allow milkweed to regrow to a mature stage prior to treatment. Allow 7 or more days after application before tillage.

Muhly, wirestem--Apply 1 to 2 quarts of this product per acre. Use 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre or in pasture, sod, or noncrop areas. Spray when the wirestem muhly is 8 inches or more in height and actively growing. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage. This product will not provide residual control of wirestem muhly from seeds which germinate after application of this product. Do not tank mix with residual herbicides when using the 1 quart per acre rate.

Nightshade, silverleaf--For control, apply 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Applications should be made when at least 60 percent of the plants have berries. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth.

Nutsedge; purple, yellow--Apply 3 quarts of this product per acre as a broadcast spray, or apply a 1 to 2 percent solution from hand-

held equipment to control existing nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Repeat treatments will be required for long-term control of ungerminated tubers.

Sequential applications of 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre will provide control. Make applications when a majority of the plants are in the 3 to 5-leaf stage (less than 6 inches tall). Repeat this application, as necessary, when newly emerging plants reach the 3 to 5-leaf stage. Subsequent applications will be necessary for long-term control.

For suppression to partial control of existing plants, apply 1 pint to 2 quarts of this product per acre, plus 0.5 to 1 percent nonionic surfactant in 3 to 40 gallons of water per acre. Treat when plants have 3 to 5 leaves and most are less than 6 inches tall. Repeat treatments will be required to control subsequent emerging plants or regrowth of existing plants. Wait 7 days after treatment before tillage or mowing.

Pampasgrass/Tce plant -Apply this product as a 1.5 to 2 percent solution using hand-held equipment. Apply to plants that are actively growing. Pampasgrass should be at or beyond the boot stage of growth. Thorough coverage is necessary for best control.

Phragmites -- For partial control of phragmites in Florida and the counties of other states bordering the Gulf of Mexico, apply 5 quarts per acre as a broadcast spray or apply a 2 percent solution from hand-held equipment. In other areas of the U.S., apply 3 quarts per acre as a broadcast spray or apply a 1 percent solution from hand-held equipment for partial control. For best results, treat during late summer or fall months or when plants are actively growing and in full bloom. Treatment before or after this stage may lead to reduced control. Due to the dense nature of the vegetation, which may prevent good spray coverage or uneven stages of growth, repeat treatments may be necessary to maintain control. Visual control symptoms will be slow to develop.

Quackgrass--In Annual Cropping Systems, or in Pastures and Sods Followed by Deep Tillage: Apply 1 to 2 quarts of this product per acre. For the 1 quart rate, apply 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. For the 2 quart rate, apply in 10 to 40 gallons of water per acre. Do not tank mix with residual herbicides when using the 1 quart rate. Spray when quackgrass is 6 to 8 inches in height and actively growing. Do not till between harvest and fall applications or in fall or spring prior to spring application. Allow 3 or more days after application before tillage. In pastures or sods, for

best results use a moldboard plow.

Quackgrass--Pasture or Sod or Other Noncrop Areas Where Deep Tillage is Not Planned Following Application: Apply 2 to 3 quarts in 10 to 40 gallons of water per acre. Spray when the quackgrass is greater than 8 inches tall and actively growing. Do not till between harvest and fall application or in fall or spring prior to spring application. Allow 3 or more days after application before tillage.

Redvine--For suppression, apply 24 fluid ounces of this product per acre at each of two applications 7 to 14 days apart or a single application of 2 quarts per acre. Apply recommended rates in 5 to 10 gallons of water per acre plus 0.5 to 1 percent nonionic surfactant by total volume. Apply to actively growing plants in late September or early October to actively growing plants, which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

Reed, giant—For control of giant reed, apply a 2 percent solution of this product when plants are actively growing. Best results are obtained when applications are made in late summer to fall.

Smartweed, swamp--Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fluid ounces of this product plus 0.5 pound active ingredient of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Spurge, leafy--For suppression, apply 16 fluid ounces of this product plus 0.5 pound active ingredient 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing. If mowing has occurred prior to treatment, apply when most of the plants are 12 inches tall. Allow 7 or more days after application before tillage.



sweet Potato, wild/resta are locked. Apply this product as a 2 percent solution using hand-held equipment. Apply to actively growing weeds that are at or beyond the bloom stage of growth. Repeat applications may will be required. Allow the plant to reach the recommended stage of growth before retreatment. Allow 7 or more days before tillage.

Thistle, Canada--Apply 2 to 3 quarts of this product per acre. Apply to actively growing thistles when most are at or beyond the bud stage of growth. After harvest, mowing or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to the application of this product. Fall treatments must be applied before a killing frost. Allow 3 or more days after application before tillage.

For suppression of Canada thistle, apply 1 quart per acre of this product, or 1 pint of this product plus 0.5 pound a.i. 2,4-D per acre, plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall after harvest, mowing or tillage. Allow rosette regrowth to a minimum of 6 inches in diameter before treating. Applications can be made as long as leaves are still green and plants are actively growing at the time of application. Allow 3 or more days after application before tillage.

Torpedograss--Apply 4 to 5 quarts of this product per acre to provide partial control of torpedograss. Apply to actively growing torpedograss when most plants are at or beyond the seedhead stage of growth. Repeat applications will be required to maintain control. Fall treatments must be applied before frost. Allow 7 or more days after application before tillage.

Trumpetcreeper--For control, apply 2 quarts of this product per acre in 5 to 10 gallons of water per acre. Apply to actively growing plants in late September or October, which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

Other perennials listed on this label—Apply 3 to 5 quarts of this product per acre. Apply when actively growing and most have reached early head or early bud stage of growth. Allow 7 or more days after application before tillage.

WOODY BRUSH AND TREES

When applied as recommended under the conditions described, this product CONTROLS or PARTIALLY CONTROLS the following woody brush, plants and trees:

Alder

Alnus spp.

Ash*

Fraxinus spp.

Aspen, quaking

Populus tremuloides

Bearmat (Bearclover)

Chamaebatia foliolosa

Beech

Fagus grandifolia

Birch

Betula spp.

Blackberry

Rubus spp.

Blackgun

Nyssa spp.

Bracken

Peridium Spp:

Broom:

French

Cytisus monspessulanus

Scotch

Cytisus scoparius

Buckwheat, California*

Eriogonum fasciculatum

Cascara*

Rhamnus purshiana

Catsclaw*

Acacia greggi

Ceanothus*

Ceanothus spp.

Chamise

Adenostoma fasciculatum

Cherry:

Bitter

Prunus emarginata

Black

Prunus serotina

Pin

Prunus pensylvanica

Coyote brush

Baccharis consanguinea

Creeper, Virginia*

Parthenocissus quinquefolia

Dewberry

Rubus trivialis

*boowpod

Comus spoi

Elderberry

Sambucus spp.

Elm*

Ulmus spp.

Eucalyptus

Eucalyptus spp.

GOTSE

Ulex europaeus

Hasardia*

Haplopappus squamosus

Hawthorn

Crataegus spp.

Hazel

Corylus spp.

Hickory*

Carya spp.

Holly Florida/ brazilian Peppertree*

-Schinos terebinthifolius

Honeysuckle

Lonicera spp.

Hornbeam, American*

Cerpinus caroliniana

Kudzu

Pueraria lobata

Locust, black*
Robinia pseudoacacia

Madrone

Arbutus menziesii

Manzanita

Arctostaphylos spp.

Maple:

Red**

Acer rubrum

Sugar

Acer saccharum

Vine*

Acer circinatum

Monkey Flower*

Mimulus guttatus

Oak:

Black*

Quercus velutina

Northern Pin

Quercus palustris

Post

Quercus stellata

Red

Quercus rubra

Southern Red

Quercus falcata

White*

Quercus alba

Persimmon*

Diospyros spp.

Pine

Pinus spp

Poison Ivy

Rhus radicans

Poison Oak

Rhus toxicodendron

Poplar, yellow*

Liriodendron tulipifera

Raspberry

Rubus spp.

Redbud, eastern

Cercis canadensis

Rose, multiflora

Rosa multiflora

Russian-olive***

Elaeagnus angustifolia

Sage; black, white

Salvia mellifera spp

Sagebrush, California

Artemisia californica

Salmonberry

Rubus spectabilis

Salt cedar

Pamārixs/spp/

Sassafras

Sassafras aibidum

Sourwood

Oxydendrum arboreum

Sumac:

Poison*

Rhus vernix

Smooth*

Rhus glabra

Winged*

Rhus copallina

Sweetgum

Liquidambar styraciflua

Swordfern*

Polystichum munitum

Tallowtree, Chinese Sapium sebiferum

Tan Oak
Lithocarpus densiflorus

Thimbleberry Rubus parviflorus

Tobacco, tree*
Nicotiana glauca

Trumpetcreeper Campsis radicans

Waxmyrtle southern* Myzica cerizera

Willow
Salix spp.

Partial control

** See below for control or partial control instructions.

*** This product is not registered in California for use on Russian-olive.

NOTE: If brush has been mowed or tilled or trees have been cut, do not treat until regrowth has reached the recommended stages of growth.

Apply this product when plants are actively growing and, unless otherwise directed, after full leaf expansion. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when application is made in the spring to early summer when brush species are at high moisture content and are flowering.

Ensure thorough coverage when using hand-held equipment. Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

See ''DIRECTIONS FOR USE'', and ''MIXING, ADDITIVES and APPLICATION

INSTRUCTIONS'' sections of this label for labeled uses and specific application instructions.

Apply this product as follows to control or partially control the following woody brush and trees.

Alder/Dewberry/Honeysuckle/Post Oak/Raspberry—For control, apply 3 to 4 quarts per acre of this product as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment.

Aspen, quaking/Cherry: bitter, black, pin/Hawthorn /Oak, southern red/Sweetgum/Trumpetcreeper— For control, apply 2 to 3 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment.

Birch/Elderberry/Hazel/Salmonberry/Thimbleberry—For control, apply 2 quarts per acre of this product as a broadcast spray or as a 1 percent solution with hand-held equipment.

Blackberry—For control, apply 3 to 4 quarts per acre of this product as a broadcast spray, or 1 to 1.5 percent solution with hand-held equipment. Make application after plants have reached full leaf maturity. Best results are obtained when applications are made in late summer or fall. After berries have set or dropped in late fall, blackberry can be controlled by applying a 3/4 percent solution of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume with hand-held equipment. For control of blackberries after leaf drop and until killing frost or as long as stems are green, apply 3 to 4 quarts of this product in 10 to 40 gallons of water per acre.

Broom: French, Scotch—For control, apply a 1.5 to 2 percent solution with hand-held equipment.

Buckwheat, California/Hasardia/Monkey Flower/ Tobacco, tree—For partial control of these species, apply a 1 to 2 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

Catsclaw—For partial control, apply as a 1 to 1.5 percent solution with hand-held equipment.

Coyote Brush-For control, apply a 1.5 to 2 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.

Eucalyptus—For control of eucalyptus resprouts, apply a 2 percent solution of this product with hand-held equipment when resprouts are 6 to 12 feet tall. Ensure complete coverage. Apply when plants are growing actively. Avoid application to drought-stressed plants.

Kudzu-For control, apply 4 quarts of this product per acre as a

broadcast spray or as a 2 percent solution with hand-held equipment. Repeat applications will be required to maintain control.

Madrone resprouts—For suppression or partial control, apply a 2 percent solution of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with spring/early summer treatments.

Maple, red—For control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed. For partial control, apply 2 to 4 quarts of this product per acre as a broadcast spray.

Maple, sugar/Oak, northern pin/Oak, red—For control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.

Poison Ivy/Poison Oak—For control, apply 4 to 5 quarts of this product per acre as a broadcast spray or as a 2 percent solution with hand-held equipment. Repeat applications may be required to maintain control. Fall treatments must be applied before leaves lose green color.

Rose, multiflora—For control, apply 2 quarts of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment. Treatments should be made prior to leaf deterioration by leaf-feeding insects.

Sage, black/Sagebrush, California/Chamise/Tallowtree, Chinese-For control of these species, apply a 1 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

Tan oak resprouts—For suppression or partial control, apply a 2 percent solution of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with fall applications.

Willow—For control, apply 3 quarts of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment.

Other Woody Brush and Trees listed on this label—For partial control, apply 2 to 4 $\frac{8}{5}$ quarts of this product per acre as a broadcast spray or as a 1 to 2 percent solution with hand-held equipment.

NONCROP USES

See ''GENERAL INFORMATION'' and ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' sections of this label for essential product performance information and the following ''NONCROP'' sections for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE TURFGRASSES, TREES, SHRUBS OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seeds.

Where repeat applications are necessary do not exceed 10 6 quarts of this product per acre per wear.

This product does not provide residual weed control. For subsequent weed control, follow a label-approved herbicide program.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

INDUSTRIAL, RECREATIONAL AND PUBLIC AREAS

When applied as directed for ''NONCROP USES'', under conditions described, this product controls annual and perennial weeds listed on this label growing in areas such as airports, ditch banks, dry ditches, dry canals, fencerows, golf courses, highways, industrial plant sites, lumber yards, parking areas, parks, petroleum tank farms and pumping installations, pipelines, power and telephone rights—of way, railroads, roadsides, schools, storage areas, utility substations, other public areas and similar industrial or noncrop areas.

For specific rates of application and instructions for control of various annual and perennial weeds and woody brush and trees, see the ''WEEDS CONTROLLED'' section of this label.

This product may be applied with recirculating sprayers, shielded applicators, or wiper applicators in any noncrop site specified on this label. See the Selective Equipment part of ''APPLICATION EQUIPMENT and TECHNIQUES'' section of this label for information on proper use and calibration of this equipment.

TANK MIXTURES FOR INDUSTRIAL SITES AND FORESTRY SITE PREPARATIONS

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Roundup plus OUST

Use on industrial sites including airports, industrial plants, lumberyards, petroleum tank farms, pumping stations, pipelines, railroads, roadsides, storage areas or other similar sites where bare ground is desired.

This tank mixture may also be used as a site-preparation treatment for-sites to be planted to jack-pine, loblolly-pine, red pine, slash pine and Virginia pine.

When applied as directed for ''NONCROP USES'' under the conditions described, this product plus Oust provides control of annual weeds listed in the ''WEEDS CONTROLLED'' section of the label for this product and Oust, and control or partial control of the perennial weeds listed below.

Apply 1 to 2 quarts of this product with 2 to 4 ounces of Oust in 10 to 40 gallons of spray solution per acre as a broadcast spray to actively growing weeds.

This mixture—may be applied by aerial equipment in site prepoperations. When applied by air, use the recommended rates in 5 to 15 gallons of spray solution per acre.

This product plus Oust tank mixtures may not be applied by air in California.

For control of annual weeds, use the lower rates of these products.

For control of the listed perennial weeds, use the higher rates of both products. For partial control, use the lower rates.

Bahiagrass

Paspalum notatum

Bermudagrass*

Cynodon dactylon

Broomsedge

Andropogon virginicus

Dock, curly

Rumex crispus

Dogfennel

Eupatorium capilliforium

Fescue, tall

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Festuca arundinacea

Johnsongrass**

Sorghum halepense

Poorjoe**

Diodia teres

Quackgrass

Agropyron repens

Trumpetcreeper*

Campsis radicans

Vaseygrass

Paspalum urvillei

Vervain, blue

Verbena hastata

- *Suppression at the higher rates only.
- **Control at the lower rates.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

TANK MIXTURES NONCROP SITES

When applied as a tank mixture, this product provides control of the emerged annual weeds and partial control of the emerged perennial weeds listed in this label. When applied as a tank mixture, the following residual herbicides will provide preemergence control of the weeds listed in the individual product labels.

	Roundup plus DIURON	
	Roundup plus KROVAR I	•
	Roundup plus KROVAR II	
1	Roundup plus RONSTAR™ 50WP	•
	Roundup plus SIMAZINE, PRINCEP™ CALIBER™ 90	•

Roundup plus SIMAZINE 4L	
Roundup plus SIMAZINE 80W	
Roundup plus SURFLAN* 75W	
Roundup plus SURFLAN AS	

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution. See the ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' section of this label before preparing these tank mixtures.

Read and carefully observe the label claims, cautionary statements, recommended use rates and all other information on the labels of all products used in these tank mixtures. Use according to the most restrictive label directions for each product in the mixture.

CONTROL OF EMERGED WEEDS

Note: For backpack sprayer and handown applications see the "HAND; HELD AND HIGH VOLUME EQUIPMENT" section for recommended rates.

Annual Weeds—Apply 1 quart per acre of this product in these tank mixtures when weeds are less than 6 inches tall and 1.5 quarts per acre when weeds are more than 6 inches tall.

Perennial Weeds—For partial control of perennial weeds using these tank mixtures, apply 2 to 5 quarts per acre of this product. Follow the recommendations in the ''WEEDS CONTROLLED'' section of this label for stage of growth and rate of application for specific perennial weeds.

PREEMERGENCE WEED CONTROL

For preemergence weed control, refer to the individual product labels for specific noncrop sites, rates, carrier volumes and precautionary statements.

Mix only the quantity of spray solution which can be used during the same day. Do not allow these tank mixtures to stand overnight as this may result in reduced weed control.

APPLY THESE TANK-MIXTURES THROUGH CONVENTIONAL BROADCAST EQUIPMENT ONLY.

FARMSTEAD WEED CONTROL

When applied as directed for ''NONCROP USES'', under conditions described, this product controls undesirable vegetation listed on this label around farmstead building foundations, along and in fences, shelterbelts and for general nonselective farmstead weed control.

For specific rates of application and instructions for control of various annual and perennial weeds, see the 'WEEDS CONTROLLED'' section of this label.

FARM DITCHES

This product will suppress perennial grasses along farm ditches. Apply this product at a rate of 6 to 8 fluid ounces per acre. Use 8 fluid ounces per acre when treating tall (coarse) fescue, fine fescue, orchardgrass or quackgrass covers. For best suppression of these species, add ammonium sulfate at a rate of 1.7 pounds per 10 gallons of spray solution. Use 6 fluid ounces per acre without ammonium sulfate when treating Kentucky bluegrass.

Apply treatments in 10 to 20 gallons of spray solution per acre to actively growing perennial grass covers. For best spray distribution and coverage, use flat fan nozzles.

Add a nonionic surfactant at a rate of 0.5 percent of the spray solution.

Where broadleaf weed control or suppression is desired, tank mix this product with an appropriate, labeled broadleaf weed herbicide.

CONSERVATION RESERVE PROGRAM (CRP ACRES)

This product can be used to control undesirable vegetation when rotating out of CRP acres or to suppress competitive growth and seed production of undesirable vegetation in CRP acres.

For specific rates of application for various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

CRP applications may be made with wiper applicators or conventional spray equipment.

For selective applications with broadcast spray equipment, apply 12

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to 16 ounces per acre of this product in early spring before desirable CRP grasses, such as crested and tall wheatgrass, break dormancy and initiate green growth. Late fall applications can be made after desirable perennial grasses have reached dormancy. Some stunting of CRP perennial grasses will occur if applications are made when plants are not dormant.

HABITAT MANAGEMENT

This product is recommended for the restoration and/or maintenance of native habitats and in wildlife management areas. Apply as recommended in the "NONCROP USES" section of this label.

Habitat Restoration and Maintenance - When applied as directed, exotic and other undesirable vegetation may be controlled in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broadspectrum vegetation control requirements in habitat management areas. Spot treatments can be made to selectively remove unwanted plants for habitat maintenance and enhancement. For spot treatments, care should be exercised to keep spray off of desirable plants.

Wildlife Food Plots - This product may be used as a site preparation treatment prior to planting wildlife food plots. Any wildlife food species may be planted after applying this product, or native species may be allowed to repopulate the area. If tillage is needed to prepare a seedbed, wait 7 days after applying this product before tilling.

ORNAMENTALS, TREE NURSERIES AND CHRISTMAS TREES

THIS PRODUCT IS NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN ORNAMENTALS AND CHRISTMAS TREES.

Note: Desirable plants may be protected from the spray solution by using shields or coverings made of cardboard or other impermeable material.

When applied as instructed for the conditions described for "NONCROP USES", this product controls undesirable vegetation listed on this label prior to planting, within and around greenhouses and shadehouses, and as a postdirected spray around established ornamentals and Christmas trees.

For specific rates of application and instructions for control of various annual and perennial weeds, see the ''WEEDS CONTROLLED'' section of this label.

Where repeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year.

Site Preparation—Following preplant applications of this product, any ornamental, site species or Christmas tree species may be planted. Precautions should be taken to protect nontarget plants during site preparation applications.

Greenhouse/Shadehouse Use—This product may be used to control weeds listed on this label which are growing in greenhouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

Postdirected Spray—Use as a postdirected spray around established woody ornamental species, nursery species or Christmas trees such as those listed below. Care must be exercised to avoid contact of spray, drift or mist with foliage of or green bark of established ornamental species.

Arborvitae

Thuja spp.

Azalea

Rhododendron spp.

Boxwood

Buxus spp.

Crabapple

Malus spp.

Euonymus

Euonymus spp.

Fir

Abies spp.

Pseudotsuga spp.

Jojoba

Simmondsia chinensis

Hollies

Ilex spp.

Lilac

Syringa spp.

Magnolia

Magnolia spp.

Maple

Acer spp.

Oak

Quercus spp.

Privet

Ligustrum spp.

Pine

Pinus spp.

Spruce

Picea spp.

Yew

Taxus spp.

SILVICULTURAL SITES and RIGHTS-OF-WAY

NOTE: NOT-RECOMMENDED FOR USE AS AN OVER-THE-TOP-BROADCAST SPRAY IN SILVICULTURAL NURSERIES

When applied as directed for "NONCROP USES"—under conditions described, this product controls undesirable vegetation listed on this label. This product also suppresses or controls undesirable vegetation listed on this label when applied at recommended rates for release of established coniferous species listed on this label.

For specific rates of application and instructions for control of various brush, annual and perennial weeds, see the ''WEEDS CONTROLLED'' section of this label. For specific rates of application for release of listed coniferous species, see the ''CONIFER RELEASE'' part of this section of the label.

Where-repeat applications are necessary, do not exceed 10.6 quarts of this product per acre-per year.

Aerial Application—This product may be applied using aerial spray equipment for silvicultural site preparation, conifer release and

rights-of-way treatments. See the ''APPLICATION EQUIPMENT and TECHNIQUES'' part of the ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' section of this label for information on how to apply this product by air.

DO NOT-APPLY THIS PRODUCT BY AIR TO RIGHTS-OF-WAY SITES IN THE STATE OF CALIFORNIA.

-To reduce the acrial application drift hazard to aquatic sites*, to nontarget sites or any site containing desirable vegetation, always maintain appropriate buffer zones. A buffer zone of the following minimum distances should be maintained:

- *- Helicopters using a Microfoil^M boom, a Thru-Valve^M boom (TVB-45), or equivalent drift control-systems, should maintain at least a 50-foot-buffer zone.
- When using other aerial equipment:
- 1. Maintain at least a 75-foot buffer zone-for applications using 2 quarts or less-per acre of this product.
- 2. Maintain at least-a 125-foot buffer zone-for-applications using more-than 2 quarts per acre of this product.
- 3. Maintain at-least a 400-foot-buffer-zone-for-applications on rights-of-way-when applied from 75-feet-or-more-above-ground level-

These distances should be increased if conditions favoring drift exist.

* Aquatic-sites include all-lakes, ponds and streams used for significant domestic purposes or angling.

Following preplant applications of this product, any silvicultural species may be planted. POSTDIRECTED SPRAY In established silvicultural sites, use as a spray on the foliage of undesirable vegetation. Care must be exercised to avoid contact of spray, drift or mist with foliage or green bark of desirable species.

For release, apply only where conifers have been established for

- CONIFER RELEASE -

more than one year. Vegetation should not be disturbed prior to treatment or until visual symptoms appear after treatment. Symptoms of treatment are slow to appear, especially in woody species treated in late fall. Injury may occur to conifers treated for release, especially where spray patterns overlap or the higher rates are applied or when applications are made during periods of active conifer growth. Do not use additional surfactant with conifer release applications.

Applications must be made after-formation-of final-conifer resting buds-in the fall or prior to initial bud swelling in spring. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Use the following rates for conifer release to control or partially control the weeds listed in the ''WEEDS CONTROLLED''-section-of this label.

For release of the following-conifer species:

Douglas fir

- Pseudotsuga menziesii

Fir

--- Abies spp.

Hemlock

-Tsuga-spp.

Pines*

- Pinus-spp.

Spruce

- Picca spp.

* Includes all species except eastern white-pine, loblolly pine or-slash pine.

Apply 1.5 to 2 quarts of this product per acre except in Washington and Oregon, west of the crest of the Cascade Mountains. For spring treatments west of the crest of the Cascade Mountains, apply 1 quart of this product per acre before conifer bud-swell for control of annual weeds. For fall treatments in Washington and Oregon, west of the crest of the Cascade Mountains, apply 1-to 1.5 quarts of this product per acre before any major leaf drop of deciduous species.

For release of western hemlock, apply 1 quart of this product per acre.

For release of the following conifer species+

Loblolly pine Pinus taeda

Eastern white pine

- Pinus strobus

Slash-pine

- Pinus elliottii

Late-Season Application-Apply 1.5 to 2 quarts of this product in a minimum of 5-gallons of spray solution per-acre-during early autumn. Applications made prior to September 1 or when conditions are conducive to rapid growth of conifers will create the potential for increased injury in the form of tip and/or needle burn. Injury may decrease with later applications. Some autumn colors are acceptable at time of application. Apply prior to frost or leaf drop of undesirable plants. Applications made according to label directions will release-loblolly pine, castern white pine and slash pine by reducing competition from the following species:

- Fraxinus-spp. Cherry: --Black -Prunus scrotina - Pin -Prunus-pensylvanica Elm --Ulmus spp. Hawthorn - Cratacgus spp. Locust, black -Robina pscudoacacia Maple, red Acer rubra Oak: -Black -Quercus velutina ---Post - Quercus-stellata - Southern Red -Quercus falcata -White -Quereus alba

Persiamon

- Diospyros spp.

Poplar, yellow

-Liriodendron tulipfera

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Sassafras

-- Sassafras albidum

Sourwood

—-Охуdendrum arboreum

Sumac+

-Poison

—— Rhus-vernix

-Smooth

— Rhus glabra

— Winged

- Rhus copallina

Sweetgum

- Liquidambar styraciflua

Apply only to those sites where woody brush and trees listed in this label constitute the majority of the undesirable species.

For Conifer Release from Rerbaceous Weeds

To release loblolly-pines from herbaceous weeds, tank-mixtures of this product with Oust will provide control of annual weeds listed in the ''WEEDS CONTROLLED'' section of this and the Oust label, and partial control of the perennial weeds listed below.

Apply 16 to 24 fluid ounces of this product with 2-to 4 ounces of Oust in 10 to 30 gallons of spray solution per acre. Make application to actively growing weeds as a broadcast spray over the top of the young loblolly pines.

This product plus Oust tank mixtures may not be applied by air in California.

This tank mixture may be applied using aerial equipment. When applying by air, use the recommended rate in 5 to 15 gallons of spray solution per acre.

For control of annual weeds below 12 inches in height (or runner length on annual vines), use the lower rates of both products. Use the higher rates of both products when annual weeds are in more advanced stages of growth and approaching flower or seed formation.

Use the higher rates of both products for partial control of the following perennial weeds. Use the lower rates for suppression of growth.

Bahiagrass

- Paspalum notatum

Broomsedge

- Andropogon virginicus

Dock, curly

- Rumex erispus

Dogfennel

- Eupatorium capilliforium

Fescue, tall

-- Festuca arundinacea

Johnsongrass*

- Sorghum halepense

Poorjoe*

- Diodia teres

Trumpetereeper**

-- Campsis radicans

Vaseygrass

— Paspalum urvillei

Vervain, blue

- Verbena hastata

*Control at the higher rates.

**Suppression-at the higher-rates only.

Pine damage may occur or can be accentuated if treatment taken place when young trees are under stress from drought, flood water, insects or disease.

Read - and - observe - the - cautionary - statements - and - all - other information appearing on the labels of all herbicides used.

NOTE TO USER

This product must not be used in areas where adverse impact on federally designated endangered/threatened plant or aquatic species

is likely.

Prior to making applications, the user of this product must determine that no such species are located in or immediately adjacent to the area to be treated.

CUT STUMP TREATMENTS

Woody vegetation may be controlled by treating freshly cut stumps of trees and resprouts with this product. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut vegetation close to the soil surface. Apply a 50 to 100 percent solution of this product to the freshly-cut surface immediately after cutting. Delays in application may result in reduced performance. For best results, applications should be made during periods of active growth and full leaf expansion.

When used according to directions for cut stump application, this product will CONTROL, PARTIALLY CONTROL or SUPPRESS many types of woody brush and tree species, some of which are listed below:

Alder

Alnus spp.

Eucalyptus

Eucalyptus spp.

Madrone

Arbutus menziesii

Oak

Quercus spp.

Reed, giant

Arundo donax

Saltcedar

Tamarisk spp.

Sweetgum

Liquidambar styraciflua

Tan Oak

Lithocarpus densiflorus

Willow

Salix spp.

INJECTION AND FRILL APPLICATIONS

Woody vegetation may be controlled by injection or frill application of this product. Apply this product using suitable equipment which must penetrate into the living tissue. Apply the equivalent of 1 ml of this product per each 2 to 3 inches of trunk diameter (DBH). This is best achieved by applying a 50 to 100 percent concentration of this material either to a continuous frill around the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying diluted material to a continuous frill or more closely spaced cuttings. Avoid application techniques that allow runoff to occur from frill or cut areas in species that exude sap freely after frills or cutting. In species such as this, make frill or cut at an oblique angle so as to produce a cupping effect and use undiluted material. For best results, application should be made during periods of active growth and after full leaf expansion.

This treatment WILL CONTROL the following woody species:

Oak

Quercus spp.

Poplar

Populus spp.

Sweetgum

Liquidambar styraciflua

Sycamore

Platanus occidentalis

This treatment WILL SUPPRESS the following woody species:

Black gum

Nyssa sylvatica

Dogwood

Cornus spp.

Hickory

Carya spp.

Maple, red

Acer rubrum

TURFGRASSES AND GRASSES FOR SEED PRODUCTION

PREPLANT AND RENOVATION

When applied as directed for ''NONCROP USES'', under conditions

described, this product controls most existing vegetation prior to the planting or renovation of either turfgrasses or grass seed production areas.

For specific rates of application and instructions for control of various annual and perennial weeds, and woody brush and trees, see the ''WEEDS CONTROLLED'' section of this label.

For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses, such as bermudagrass, summer or fall applications provide best control.

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

TURFGRASSES

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth listed in the ''WEEDS CONTROLLED'' section of this label.

Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray.

Desirable turfgrasses may be planted following the above procedures.

GRASSES FOR SEED PRODUCTION

Apply this product to actively growing weeds at the stages of growth recommended in the ''WEEDS CONTROLLED'' section of this label prior to planting or renovation of turf or forage grass areas grown for seed production.

DO NOT feed or graze treated areas within 8 weeks after application.

ANNUAL WEED CONTROL IN DORMANT BERMUDAGRASS AND BAHIAGRASS TURF

When applied as directed for '!NONCROP USES'' under the conditions described, this product will provide control or suppression of many

winter annual weeds and tall fescue for effective release of dormant bermudagrass and bahiagrass turf. Refer to the rate table for Roundup alone under the ''RELEASE OF BERMUDAGRASS and BAHIAGRASS'' section of this label for recommended rates and volumes on the species to be suppressed or controlled. Treat only when turf is dormant and prior to spring greenup. Spot treatments or broadcast applications of this product in excess of 16 fluid ounces per acre may result in injury or delayed greenup in highly maintained turfgrass areas; i.e., golf courses, lawns, etc. DO NOT APPLY TANK MIXTURES of this product plus Oust in highly maintained turfgrass areas.

RELEASE OF BERMUDAGRASS OR BAHLAGRASS

NOTE: Use only in areas where bermudagrass or bahiagrass are desirable ground covers and where some temporary injury or discoloration can be tolerated. Use tank mixtures of this product plus Oust only on railroads, highways, utility plant sites, or other right-of-way areas.

When applied as directed for "NONCROP USES" under the conditions described, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant bermudagrass or bahiagrass. This product may be tank-mixed with Oust as recommended for residual control. Make applications to dormant bermudagrass or bahiagrass. Tank mixtures of this product plus Oust may delay greenup. To avoid delays in greenup and minimize injury, do not add more than 1 ounce per acre of Oust on bermudagrass or more than 0.5 ounce per acre on bahiagrass, or treat when these grasses are in a semi-dormant condition.

For best results on winter annuals, treat when plants are in an early growth stage (below 6 inches in height) after most have germinated. For best results on tall fescue, treat when fescue is in or beyond the 4 to 6-leaf stage.

WEEDS CONTROLLED

Rate recommendations for control or suppression of winter annuals and tall fescue are listed below:

Apply the recommended rates of this product alone or as a tank mixture in 10 to 25 gallons of water, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre.

For the best recommendation for the mixture of weeds within your geographic area, contact your Monsanto sales representative.

WEEDS CONTROLLED OR SUPPRESSED WITE Roundup ALONE*

NOTE:

C = Control
S = Suppression

	Roi	ındup	FLU	ID C	Z/AC	CRE
WEED SPECIES	8	12	16	24	32	64
Barley, little Hordeum pusilium	S	С	С	С	С	С
Bedstraw, catchweed Galium aparine	S	С	C	C ·	С	С
Bluegrass, annual Poa annua	S	С	С	С	С	С
Chervil Chaerophyllum tainturieri	S	С	С	С	С	С
Chickweed, common Stellaría media	S	С	С	С	С	С
Clover, crimson Trifolium incarnatum	•	s	S	С	С	С
Clover, large hop Trifolium campestre	•	S	S	С	С	С
Fescue, tall Festuca arundinaceae	•	•	•	•	S	S
Geranium, Carolina Geranium carolinianum	•	•	S	S	С	С
Henbit Lamium amplexicaule	•	S	С	С	С	С
Ryegrass Italian Lolium multiflorum	•	•	S	С	С	С
Speedwell, corn Veronica arvensis	S	С	С	С	С	С
Vetch, common Vicia sativa	•	•	S	С	С	С

* These rates apply only to sites where an established competitive turf is present.

WEEDS CONTROLLED OR SUPPRESSED WITH Roundup PLUS OUST*

NOTE: C = Control S = Suppression

s = Suppression	Roi	undup) + C	UST			
Roundup (FL. OZ/A) WEED + SPECIES OUST (OZ/A)	8 + भ	12 + 4	12 + ½	16 + h	16 +	12 + 1	16 + 1
Barley, little Hordeum pusilium	C	С	С	С	С	С	С
Bedstraw, catchweed Galium aparine	С	С	С	С	, C	С	С
Bluegrass, annual Poa annua	S	С	С	С	С	С	С
Chervil Chaerophyllum tainturieri	С	С	С	С	С	С	С
Chickweed, common Stellaria media	S	С	С	С	С	С	С
Clover, crimson Trifolium incarnatum	S	S	S	S	С	С	С
Clover, large hop Trifolium campestre	•	•	S	S	S	C .	С
Fescue, tall Festuca arundinaceae	•	•	•	•	•	S	S
Geranium, Carolina Geranium carolinianum	•	S	S	С	С	С	С
Henbit Lamium amplexicaule	•	S	С	С	С	С	С
Ryegrass, Italian Lolium multiflorum	•	S	s	С	С	С	С

Speedwell, corn Veronica arvensis	S	С	С	С	С	С	С
Vetch, common Vicia sativa	С	С	С	С	С	С	С

* These rates or mixtures of rates apply only to sites where an established competitive turf is present.

RELEASE OF ACTIVELY GROWING BERMUDAGRASS

When applied as directed, this product will aid in the release of bermudagrass by providing control of annual species listed in the ''WEEDS CONTROLLED'' section of this and the Oust label, and suppression or partial control of certain perennial weeds.

For control or suppression of those annual species listed on this label, use 1 to 3 pints of this product as a broadcast spray in 10 to 25 gallons of spray solution per acre. Use the lower rate when treating annual weeds below 6 inches in height (or length of runner in annual vines). Use the higher rate as weeds increase in size or as they approach flower or seedhead formation.

Use the higher rate of this product for partial control of the following perennial species. Use the lower rates for suppression of growth. For best results, see the ''WEEDS CONTROLLED'' section of this label for proper stage of growth.

Bahiagrass

Paspalum notatum

Bluestem, silver

Andropogon saccharoides

Fescue, tall

Festuca arundinacea

Johnsongrass*

Sorghum halepense

Trumpetcreeper**

Campsis radicans

Vaseygrass

Paspalum urvillei

^{*}Control at the higher rates.

^{**}Suppression at higher rates only.

This product may be tank-mixed with Oust. If tank-mixed, use no more than 1 to 2 pints per acre of this product with 1 to 2 ounces of Oust per acre.

Use the lower rates of both mixtures to control annual weeds below 6 inches in height (or runner length in annual vines) that are listed in the 'WEEDS CONTROLLED' section of this booklet and the Oust label. Use the higher rates as annual weeds increase in size and approach the flower or seedhead stages.

Use the higher rates of this product to provide partial control of the following perennial weeds. Use the lower rates for suppression of growth.

Bahiagrass

Paspalum notatum

Bluestem, silver

Andropogon saccharoides

Broomsedge

Andropogon virginicus

Dock, curly

Rumex crispus

Dogfennel

Eupatorium capilliforium

Fescue, tall

Festuca arundinacea

Johnsongrass*

Sorghum halepense

Poorjoe**

Diodia teres

Trumpetcreeper*

Campsis radicans

Vaseygrass

Paspalum urvillei

Vervain, blue

Verbena hastata

- *Suppression at higher rates only.
- **Control at the higher rates.

Use only on well-established bermudagrass. Bermudagrass injury may

result from the treatment but regrowth will occur under moist conditions. Repeat applications in the same season are not recommended, since severe injury may result.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

COOL SEASON TURF GROWTH REGULATION

When applied as directed, this product will suppress growth and seedhead development of listed turf species in industrial sites.

This product is recommended for management of coarse turf on roadside rights-of-way or other industrial areas. Do not use on high-quality turf or other areas where some turf color changes cannot be tolerated. Slight turf discoloration may occur but turf will regreen and regrow under moist conditions as effects of this product wear off.

Apply 4 to 6 fluid ounces of this product per acre alone or in a recommended tank mixture. Spray volumes of 10 to 40 gallons per acre are recommended.

When using this product, mix 2 quarts of a nonionic surfactant per 100 gallons of spray solution.

This product can be used for growth and seedhead suppression of:

Tall Fescue Smooth Brome

For best results, apply this product in a recommended tank mixture to actively growing turfgrasses after greenup in the spring of the year. For suppression of seedheads, applications must be made before boot-to-seedhead stage of development. Applications made from seedhead emergence until maturity may result in turf discoloration or injury.

After mowing or removal of seedheads, this product in a recommended tank mixture may also be used to suppress the growth of certain turfgrasses. Allow turf to recover from stress caused by heat, drought or mowing before making applications. Applications made to turf under stress may increase the potential for discoloration or injury.

ANNUAL GRASSES

For growth suppression of some annual grasses such as annual

ryegrass, wild barley and wild oats, apply 3 to 4 fluid ounces of this product in 10 to 40 gallons of spray solution per acre. Applications should be made when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments made after seedhead emergence may cause injury to the desired grasses.

TANK MIXTURES

For the following tank mixtures, consult each product label for weeds controlled and the correct stage of application. Do not treat turf under stress.

Tank mixtures plus 2,4-D Amine

For additional weed control benefits, up to 1 pound a.i. per acre of 2,4-D amine may be added to the following tank mixtures. Consult the label for 2,4-D amine for weeds controlled.

TALL FESCUE

Roundup plus Telar™

For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.5 ounce of Telar per acre.

This tank mixture can also be applied after mowing or removal of tall fescue seedheads for turf growth suppression. Make only one of the above applications per growing season.

Roundup plus Oust

For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

Roundup plus Escort™

This tank mixture can be applied after mowing or removal of tall fescue seedheads for turf growth suppression and control or partial control of some annual weeds. Use up to 1/3 ounce of Escort per acre.

NOTE: This product is not registered for use with Escort in California.

SMOOTH BROME

Roundup plus Oust

For suppression of smooth brome growth and seedheads and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

BAHIAGRASS SEEDHEAD AND VEGETATIVE SUPPRESSION

When applied as directed in the indicated noncrop areas (roadsides, airports, golf course roughs, and plant sites), this product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with single applications and approximately 120 days with sequential applications.

Apply this product 1 to 2 weeks after full greenup of bahiagrass or after the bahiagrass has been mowed to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 fluid ounces per acre of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume may be made at approximately 45 day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product per acre plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces per acre plus nonionic surfactant may be made approximately 45 days after the last application.

A tank mixture of this product plus Oust may be applied only on roadsides for seedhead inhibition and vegetative suppression. Apply 6 fluid ounces per acre of this product plus 0.25 ounce per acre of Oust, plus 0.5 to 1 percent nonionic surfactant by total spray volume 1 to 2 weeks following an initial spring mowing. When using this product plus Oust for suppression of bahiagrass, make only 1 application per year.

CROPPING SYSTEMS

When applied as directed for ''CROPPING SYSTEMS'', under the conditions described, this product controls annual and perennial weeds listed on this label, prior to the emergence of direct seeded crops or prior to transplanting of crops listed on this label.

See ''GENERAL INFORMATION'' and ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' sections of this label for essential product performance information.

See the following ''CROPPING SYSTEMS'' sections for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS OR FRUIT OF DESIRABLE CROPS, PLANTS, TREES OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Except as otherwise specified on this label, repeat treatments must be made before the crop emerges in accordance with the instructions of this label.

Except as otherwise specified in a crop section of this label, the combined total of all treatments must not exceed 8 quarts per acre of this product per year.

Do not plant subsequent-crops other than those on the label or 30 days following application.

For any crop not itsted below, applications must be made at least 30 days prior to planting.

Do not harvest or feed treated vegetation for 8 weeks following application. Following spot treatment or selective equipment use, allow 14 days before grazing domestic livestock or harvesting forage grasses and legumes.

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ROW CROPS

CORN (ALL)*
COTTON*
PEANUTS
SORGHUM (MILO)*
SOYBEANS*
SUGARCANE*

CEREAL GRAINS

BARLEY*
BUCKWHEAT*
MILLET (PEARL, PROSO)*
OATS*
RICE**
RYE*
TRITICALE*
WHEAT (ALL)*
WILD RICE*

CITRUS

CALAMONDIN
CHIRONJA
CITRON
GRAPEFRUIT
KUMQUAT
LEMON
LIME
MANDARIN ORANGE
ORANGE (ALL)
PUMMELO
TANGELO
TANGERINE
TANGORS

TREE NUTS

ALMOND
BEECHNUT
BRAZIL NUT
BUTTERNUT
CASHEW
CHESTNUT
CHINQUAPIN
FILBERT (HAZELNUT)
HICKORY NUT
MACADAMIA
PECAN
PISTACHIO
WALNUT (BLACK, ENGLISH)

VINE CROPS

GRAPES KIWI FRUIT

TREE FRUITS

APPLE

APRICOTS
CHERRY (SWEET, SOUR)
LOQUAT
MAYHAW
NECTARINE
OLIVE
PEACH
PEAR
PLUM/PRUNE (ALL)
QUINCE

VEGETABLES

ARTICHOKE, **JERUSALEM** ASPARAGUS* BEANS (ALL) BEET GREENS BEETS (RED, SUGAR) BROCCOLI (ALL) BRUSSELS SPROUTS CABBAGE (ALL) CABBAGE, CHINESE CANTALOUPE*** CARROT CAULIFLOWER CASABA MELON*** CELERIAC CELERY CHARD, SWISS CHICORY COLLARDS CRENSHAW MELON*** CUCUMBER*** EGGPLANT*** ENDIVE GARLIC*** GOURDS*** GROUND CHERRY*** HONEYDEW MELON*** HONEY BALL MELON*** HORSERADISH KALE KOHLRABI LEEK LENTILS LETTUCE MANGO MELON*** MELONS (ALL) *** MUSKMELON*** MUSTARD GREENS

OKRA

ONION RAPE GREENS PARSLEY PARSNIPS PEAS (ALL) PEPPER (ALL) *** PERSIAN MELON*** POTATO (IRISH, SWEET) PUMPKIN*** RADISH RHUBARB RUTABAGA SHALLOT SPINACH (ALL) SQUASH (SUMMER, WINTER) *** TOMATILLO*** TOMATO*** † TURNIP WATERCRESS*** WATERMELON*** YAMS

SMALL FRUITS AND BERRIES

BLACKBERRY
BLUEBERRY
BOYSENBERRY
CRANBERRY
CURRANT
DEWBERRY
ELDERBERRY
GOOSEBERRY
HUCKLEBERRY
LOGANBERRY
OLALLIEBERRY
RASPBERRY (BLACK, RED)

FORAGE CROPS AND LEGUMES

ALFALFA*
FORAGE GRASSES*
FORAGE LEGUMES*

TROPICAL CROPS

ACEROLA
ATEMOYA
AVOCADO
BANANA (PLANTAINS)
BREADFRUIT
CANISTEL
CARAMBOLA

CHERIMOYA COCOA BEANS COFFEE DATES FIGS GENIP **GUAVA** JABOTICABA JACKFRUIT LONGAN LYCHEE MANGO PAPAYA PASSION FRUIT PERSIMMONS PINEAPPLE**** **POMEGRANATE** SAPODILLA SAPOTE (BLACK, MAMEY, WHITE) SOURSOP SUGAR APPLE TAMARIND TEA

- * Spot treatments may be applied in these crops.
- ** Do not treat rice fields or levees when the fields contain flood water.
- *** Apply only prior to planting. Allow at least 3 days between application and planting.
- ****Do not feed or graze treated pineapple forage following application.
 - † Use is restricted to direct seeded crops only.

When applying this product prior to transplanting crops into plastic mulch, care must be taken to remove residues of this product from the plastic prior to transplanting. Residues can be removed by 0.5 inch natural rainfall or by applying water via a sprinkler irrigation system.

Spot Treatment (Only those crops with ''*'' can be spot treated.)—Applications in growing crops must be made prior to heading of small grains and milo, initial pod set in soybeans, silking of corn, or boll opening on cotton.

For forage grasses and forage legumes see ''SPOT TREATMENT'' in the

''PASTURES'' section of ''CROPPING SYSTEMS'' in this label.

For dilution and rates of application using boom or hand-held equipment, see ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' and ''WEEDS CONTROLLED'' sections of this label.

NOTE: FOR FORAGE GRASSES AND FORAGE LEGUMES, NO MORE THAN ONE-TENTH OF ANY ACRE SHOULD BE TREATED AT ONE TIME. FOR ALL OTHER CROPS, DO NOT TREAT MORE THAN 10 PERCENT OF THE TOTAL FIELD AREA TO BE HARVESTED.

THE CROP RECEIVING SPRAY IN TREATED AREA WILL BE KILLED. TAKE CARE TO AVOID DRIFT OR SPRAY OUTSIDE TARGET AREA FOR THE SAME REASON.

Selective Equipment—This product may be applied through recirculating sprayers, shielded applicators or wiper applicators in cotton and soybeans. Shielded and wiper applicators may also be used in tree crops and grapes. Wiper applicators may be used in the crops are grasses and forage legumes, including pasture sites and grain sorghum (milo).

See the ''SELECTIVE EQUIPMENT'' part of the ''APPLICATION EQUIPMENT and TECHNIQUES'' section of this label for information on proper use and calibration of this equipment.

Allow at least the following time intervals between application and harvest:

Cotton, Soybeans/ days
Apples, Atemoya, Avocado, Breadfruit, Canistel,
Carambola, Cherry, Citrus, Grapes, Dates,
Jaboticaba, Jackfruit, Longan, Lychee, Passion
Fruit, Pear, Persimmons, Rutabagas, Sapodilla,
Sapote, Soursop, Sugar Apple, Tamarind
Stone Fruit
Nut Crops, except/pistachios
Prstachio/nuts///////////////////////////////////
Wheat'
Sorghum (milo) * 30

^{*} Do not use roller applicators. Do not feed or graze treated milo fodder. Do not ensile treated vegetation.

Do not feed or graze treated millo fodder. Do not ensile treated wegetation.

ASPARAGUS

When applied as directed for ''CROPPING SYSTEMS'' under the conditions described, this product controls weeds listed on this label in asparagus.

For specific rates of applications and instructions for control of various annual and perennial weeds, see the ''WEEDS CONTROLLED'' section of this label.

Prior to Crop Emergence—Apply this product prior to crop emergence for the control of emerged labeled annual and perennial weeds. DO NOT APPLY WITHIN A WEEK BEFORE THE FIRST SPEARS EMERGE.

Spot Treatment—Apply this product immediately after cutting, but prior to the emergence of new spears. Do not treat more than 10 percent of the total field area to be harvested. Do not harvest within 5 days of treatment.

Postharvest—Apply this product after the last harvest and all spears have been removed. If spears are allowed to regrow, delay application until ferns have developed. Delayed treatments should be applied as directed or shielded spray in order to avoid contact of the spray with ferns, stems or spears. Direct contact of the spray with the asparagus may result in serious crop injury.

NOTE: Select and use recommended types of spray equipment for postemergence postharvest applications. A directed spray is any application where the spray pattern is aligned in such a way as to avoid direct contact of the spray with the crop. A shielded spray is any application where a physical barrier is positioned and maintained between the spray and the crop to prevent contact of spray with the crop.

BERRIES AND SMALL FRUITS

For cranberries, apply-after fruit set and no later than 30-days before harvest.

For other berries, apply as a preplant broadcast application, or as a directed spray or wiper application post-planting.

Wiper -applicators may be used in cranberries in accordance with instructions in this section.

Wiper applicators may be used in cranberries in accordance with instructions in this section.

for other becries, apply as a preplant broadcast application, or as a directed spray or wiper application post-planting.

See ''GENERAL INFORMATION'' and ''MIXING, ADDITIVES and APPLICATION

INSTRUCTIONS'' sections of this label for essential product performance information.

See the ''SELECTIVE EQUIPMENT'' part of the ''APPLICATION EQUIPMENT and TECHNIQUES'' section of this label for information on recommended use and calibration of this equipment.

Allow a minimum of 14 days between last application and harvest of small fruits and berries.

Allow a minimum of 30 days between last application and harvest of cranberries. For other small fruits and berries, allow a minimum of 14 days between last application and harvest.

For Wick or other Wiper Applicators—Mix 1 gallon of this product in 4 gallons of water to prepare a 20 percent solution. Apply the solution to emerged weeds. Apply after cranberry fruit set and no later than 30 days before harvest.

In severe infestations, reduce equipment ground speed to ensure that adequate amounts of this product are wiped on the weeds. A second treatment in the opposite direction may be beneficial.

Do not permit herbicide solution to contact desirable vegetation, including green shoots, canes or foliage.

FALLOW AND REDUCED TILLAGE SYSTEMS

FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO SUPPLEMENTAL LABEL.

Use this product in fallow and reduced tillage systems for control of annual weeds prior to emergence of crops listed in this label. Refer to the ''WEEDS CONTROLLED'' section of this label for specific rates and instructions. This product may be applied using ground or aerial spray equipment. See the ''APPLICATION EQUIPMENT and TECHNIQUES'' section of this label for instructions.

	TANK MIXTURES	
•	Roundup plus BANVEL plus NONIONIC SURFACTANT	•
	Roundup plus 2,4-D plus NONIONIC SURFACTANT	•
	Roundup plus GOAL ^M plus NONIONIC SURFACT ANT	•

DO NOT APPLY BANVEL OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA.

Applications of 2,4-D or Banvel must be made at least 7 days prior to planting corn.

The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed species. Some crop injury may occur if Banvel is applied within 45 days of planting. Refer to the Banvel and 2,4-D labels for cropping restrictions and other use instructions.

Roundup plus Goal Tank Mixtures

This product alone or in tank mixtures with Goal plus 0.5 to 1 percent nonionic surfactant by total spray volume will provide control of those weeds listed below.

Make applications when weeds are actively growing and at the recommended stages of growth. Avoid spraying when weeds are subject to moisture stress, when dust is on the foliage or when straw canopy covers the weeds.

Roundup 12 fluid oz/acre

Wheat Barley	18"* 12"
Bluegrass,	6"
Barnyardgrass	6"
Rve	6"

Roundup 16 fluid oz/acre

Annual grasses at left plus:

Ryegrass,	
annual	6"
Chickweed	6"
Groundsel	6"
Marestail	6"
Rocket, London	6"
Shepherdspurse	6"
Crabgrass	12"
Johnsongrass,	
seedling	12"
Lambsquarters	12"
Oats, wild	12"

Pigweed, redroot 12" Mustards 12"

NOTE: Use 32 fluid ounces of this product per acre where heavy weed densities exist.

Roundup 12 fluid oz + GOAL** 2 to 4 fluid	_	Roundup 16 fluid oz + GOAL** 2 to 4 fluid	
Annual grasses abov plus:	e	Annual weeds above plus:	
Cheeseweed, common Chickweed Groundsel Rocket, London Shepherdspurse	3" 3" 3" 6"	Cheeseweed, common Groundsel Chickweed Rocket, London Shepherdspurse	6" 6" 12" 12" 12"

NOTE: Use 32 fluid ounces of this product per acre in mixtures with 2 to 4 fluid ounces of Goal per acre where heavy weed densities exist.

- * Maximum height or length in inches.
- ** Use the higher rate of Goal when weeds approach maximum recommended height or stands are dense.

These recommended tank mixtures may be applied using ground or aerial spray equipment. Refer to the ''WEEDS CONTROLLED'' section of this label for specific rates and instructions.

ECOFARMING SYSTEMS

The recommendations made in this section are not registered for use in California.

The Ecofarming System consists of the following rotation: winter wheat, corn/sorghum, ecofallow.

Use the following tank mixtures for control of emerged annual weeds before planting corn or sorghum in the Ecofarming System.

Roundup at 16 to 20 fluid ounces per acre plus 2,4-D at 0.375 to 0.5 pound a.i. per acre

plus Atrazine at 0.75 to 1 pound a.i. per acre plus Lasso® at 2.5 to 3 quarts per acre

The above tank mixture should be applied in 28-0-0 or 32-0-0 liquid fertilizer carrier at 20 to 30 gallons per acre. The liquid fertilizer may be diluted with water to achieve the desired carrier volume.

WEEDS CONTROLLED - The following weeds, up to a maximum height of 4 inches, will be controlled:

Brome, downy Bromus tectorum

Cheat

Bromus secalinus

Foxtail, green Setaria viridis

Foxtail, yellow Setaria lutescens

Kochia*

Kochia scoparia

Lettuce, prickly
Lactuca serriola

Pigweed, redroot
Amaranthus retroflexus

Thistle, Russian Salsola kali

Wheat, volunteer Triticum aestivum

*For improved control of kochia, add 4 fluid ounces per acre (0.125 pound a.i. per acre) of Banvel to the above tank mixture.

Risk of crop injury from 2,4-D or Banvel can be reduced by applying this treatment 7 to 14 days before planting.

Refer to the label booklet for Lasso herbicide for preemergence weed control achieved by this tank mixture.

Refer to the specific product labels for crop rotation restrictions and cautionary statements for all products used in these tank mixtures.

AID TO TILLAGE

This product, when used in conjunction with preplant tillage practices, will provide control of downy brome, cheat, volunteer wheat, tansy mustard and foxtail. Apply 8 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make applications when weeds are actively growing and before they are 6 inches in height. Application must be followed by conventional tillage practices no later than 15 days after treatment and before regrowth occurs. Allow at least 1 day after application before tillage. Tank mixtures with residual herbicides may result in reduced performance.

POSTHARVEST GRAIN SORGHUM SORGHUM REGROWTH CONTROL



PASTURES

Apply this product prior to planting forage grasses and legumes.

Pasture or Hay Crop Renovation—When applied as a broadcast spray, this product controls the annual and perennial weeds listed in this label prior to planting forage grasses or legumes. Remove domestic livestock before application and wait 8 weeks after application before grazing or harvesting.

Spot Treatment—When applied as a spot treatment as recommended, this product controls annual and perennial weeds listed in this label which are growing in pastures, forage grasses and forage legumes composed of bahiagrass, bermudagrass, bluegrass, brome, fescue, orchardgrass, ryegrass, timothy, wheatgrass, alfalfa or clover.

Wiper Application—When applied as directed, this product controls or suppresses the weeds listed under ''WIPER APPLICATORS" in the

''SELECTIVE EQUIPMENT'' section of this label.

For spot treatment and wiper application, apply in areas where the movement of domestic livestock can be controlled. No more than one-tenth of any acre should be treated at one time. Further applications may be made in the same area at 30-day intervals. Remove domestic livestock before application and wait 14 days after application before grazing livestock or harvesting.

SUGARCANE

When applied as directed for ''CROPPING SYSTEMS'', under the conditions described, this product controls those emerged annual and perennial weeds listed on this label growing in or around sugarcane or in fields project the emergence of prant cane to be planted to sugarcane. This product will also control undesirable sugarcane.

NOTE: Where repeat treatments are necessary, do not exceed a total of 10.6 quarts of this product per acre per year. Do not apply to vegetation in or around ditches, canals or ponds containing water to be used for irrigation.

Broadcast Treatment—Apply this product in 10 to 40 gallons of water per acre on emerged weeds growing in fields to be planted to sugarcane. Prior to the emergence of plant cane.

For specific rates of application and instructions for control of various annual and perennial weeds, see the ''WEEDS CONTROLLED'' section of this label.

For removal of last stubble or ration cane, apply 4 to 5 quarts of this product in 10 to 40 gallons of water per acre to new growth having at least 7 or more new leaves. Allow 7 or more days after application before tillage.

Spot Treatment in or Around Sugarcane Fields—For dilution and rates of application using hand-held equipment, see ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' and ''WEEDS CONTROLLED'' sections of this label.

For control of volunteer or diseased sugarcane, make a 1 percent solution of this product in water and spray to wet the foliage of vegetation to be controlled.

NOTE: When spraying volunteer or diseased sugarcane, the plants should have at least 7 new leaves.

Avoid spray contact with healthy cane plants since severe damage or destruction may result.

Do not feed or graze treated sugarcane forage following application.

CONSERVATION TILLAGE, MINIMUM TILLAGE AND NO-TILL SYSTEMS CORN AND SOYBEANS Tank Mixtures

The recommendations made in this section are not registered for use in California.

When applied as recommended under the conditions described, the tank mixtures listed in this section control many emerged weeds, and give preemergence control of many annual weeds where corn or soybeans will be planted directly into a cover crop, established sod or in previous crop residues.

Refer to specific product labels for crop rotation restrictions and cautionary statements of all products used in these tank mixtures. For mixing instructions, see the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.

Apply these tank mixtures in 10 to 20 gallons of water or 10 to 60 gallons of nitrogen solution per acre before, during or after planting. Do not apply these mixtures after crop emergence.

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution. The addition of 1 to 2 percent dry ammonium sulfate by weight may increase the performance of this product.

NOTE: When using these tank mixtures, do not exceed 4 quarts of this product per acre.

CORN

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

LASSO/ALACHLOR
LARIAT®
BULLET®
DUAL™
BICEP™
PARTNER® *

ATRAZINE
CYANAZINE
SIMAZINE
PROWL™
MICRO-TECH®

For improved burndown, this product may be tank-mixed with 2,4-D or dicamba. Applications of 2,4-D or dicamba must be made at least 7 days prior to planting corn. See the "WEEDS CONTROLLED" section for specific rate information.

* Partner herbicide is not tenstered in California.

SOYBEANS

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

CANOPYM
COMMANDM
DUAL
GEMINIM
LASSO/ALACHLOR
LEXONEM
LINURON
PURSUITM
PARTNER

LOROX™ PLUS
PREVIEW™
PP.OWL
TURBO™
SCEPTER™
SENCOR™
SQUADRON™
PURSUIT PLUS™
MICRO-TECH®

For improved burndown, this product may be tank-mixed with the following herbicides:

2,4-DB 2,4-D*

* See the label for 2,4-D for intervals between application and planting.

CORN AND SOYBEANS

Annual Weeds—For difficult—to—control weeds such as fall panicum, barnyardgrass, crabgrass, shattercane and broadleaf signalgrass up to 2 inches tall, and Pennsylvania smartweed up to 6 inches tall, apply this product at 2 pints per acre in these tank mixtures. For other labeled annual weeds, apply 1 to 1.5 pints of this product per acre when weeds are less than 6 inches tall, and 2 to 3 pints when weeds are over 6 inches tall. For a complete list of annual weeds controlled, see the "WEEDS CONTROLLED" section of this label.

Perennial Weeds—At normal application times in minimum tillage systems, perennial weeds may not be at the proper stage of growth for control. See the "WEEDS CONTROLLED" section of this label for the proper stage of growth for perennial weeds.

Use of 2 to 4 quarts of this product per acre in the tank mixtures mentioned above, under these conditions provides top kill and reduces competition from many emerged perennial grass and broadleaf weeds. For emerged perennial weeds controlled, see the "WEEDS CONTROLLED" section of this label.

To obtain the desired stage of growth, it may be necessary to apply this product alone in the late summer or fall and then follow with a label-approved, seedling weed-control program at planting.

USE OF THESE TANK MIXTURES FOR BERMUDAGRASS OR JOHNSONGRASS CONTROL IN MINIMUM TILLAGE SYSTEMS IS NOT RECOMMENDED. For bermudagrass control, follow the instructions under "CONTROL OF PERENNIAL WEEDS" section of this label and then use a label-approved, seedling weed-control program in a minimum tillage or conventional tillage system. For Johnsongrass control, follow instructions under "CONTROL OF PERENNIAL WEEDS" section of this label, and then use a label-approved, seedling weed-control program with conventional tillage.

PREHARVEST APPLICATIONS

When applied as directed under the conditions described, this product controls annual and perennial weeds listed on this label prior to the harvest of cotton and soybeans. To the many soybeans and have a condition of the cotton and soybeans.

Eur specific rates and application instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.



Nome bo not apply to crops groun for seed. Reduction in germanation or vigor may occur.

The Use of this product for preharvest wheat or soybeans is not registered in california

SOYBEANS

Apply after pods have set and lost all green color. Allow a minimum of 7 days between application and harvest of soybeans. Care should be taken to avoid excessive seed shatter loss due to ground application equipment.

total spray volume in 3 to 10 gallons of water per acre to bermudagrass up to 6 inches in height and no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Sequential applications may be made when regrowth occurs and bermudagrass injury and stand reduction can be tolerated.

Cool Season Grass Covers

For suppression of tall fescue, fine fescue, orchardgrass and quackgrass, apply 8 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. For best suppression, add ammonium sulfate to the spray solution at a rate of 2 percent by weight or 17 pounds per 100 gallons of spray solution.

For suppression of Kentucky bluegrass covers, apply 6 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant. Do not add ammonium sulfate.

For best results, mow cool-season grass covers in the spring to even their height and apply the recommended rate of this product 3 to 4 days after mowing. Avoid treating cool season grass covers under poor growing conditions, such as drought stress (drip irrigation), disease or insect damage.

LOW VOLUME APPLICATION (FLORIDA AND TEXAS)

For burndown or control of the weeds listed, apply the recommended rates of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 30 gallons of water per acre. Where weed foliage is dense, use 10 to 30 gallons of water per acre.

Annual Weeds

Goatweed—Apply 2 to 3 quarts per acre of this product plus 17 pounds of ammonium sulfate per 100 gallons of water plus 0.5 to 1 percent nonionic surfactant by total spray volume. Apply in 20 to 30 gallons of water per acre when plants are actively growing. Use 2 quarts per acre when plants are less than 8 inches tall and 3 quarts per acre when plants are greater than 8 inches. If goatweed is greater than 8 inches tall, the addition of Krovar II or Karmex may improve control. Use labeled rates for these residual products.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the Krovar II and Karmex labels.

Perennial Weeds

Apply when weeds are actively growing and at the growth stages listed in the ''PERENNIAL WEEDS CONTROLLED'' section of this label. If perennial weeds are mowed, allow weeds to regrow to the

Do not graze or harvest treated crop for livestock feed within 25 days of last preharvest application.

DO NOT APPLY MORE THAN 6 QUARTS PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS.

DO NOT APPLY MORE THAN 1 QUART PER ACRE OF THIS PRODUCT BY AIR:

For specific rates and application instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of the Roundup label booklet.

This-product may be applied by both ground and aerial-application equipment. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of the Roundup label booklet for instructions-for-ground and aerial applications.

NOTE: It is not recommended that soybeans grown for seed be treated because a reduction in germination or vigor may occur.

-The-use of this product for preharvest soybeans is-not registered in-California.

COTTON

Broadcast Applications—This product may be applied using either aerial or ground spray equipment. For ground applications with broadcast equipment, apply this product in 10 to 20 gallons of water per acre. For aerial applications, apply this product in 3 to 10 gallons of water per acre.

FOR AERIAL APPLICATIONS, REFER TO THE "APPLICATION EQUIPMENT AND TECHNIQUES" AND "AERIAL EQUIPMENT" SECTIONS OF THIS LABEL.

FOR AERIAL APPLICATIONS IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR.

Weed Control—For specific rates of application and instructions for control of various annual and perennial weeds for this product used—alone—or in the following tank mixtures, see the "WEEDE CONTROLLED" section of this label.

To control Johnsongrass using multiple-directed or broadcast overthe-top spray equipment, apply 1 quart of this product plus 0.5 to 1 percent-nonionic surfactant by total spray volume in 10 to 20



gallons of water per acre. Ensure complete coverage.

For partial control of field bindweed, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre. Apply when bindweed is actively growing and 12 inches or greater in length. Reduced performance may result if bindweed is under drought stress.

TANK MIXTURES

Roundup plus DEF™ 6
Roundup plus Folex™
Roundup plus Prep™
Roundup plus Prep plus DEF 6 or Folex

When applied as recommended under the conditions described, these tank mixtures control annual and perennial weeds listed on this label prior to the harvest of cotton. For application guidelines, precautions and use rates, refer to the DEF, Folex and Prep labels.

This product when tank-mixed with DEF 6 or Folex-defoliants may provide enhancement of cotton leaf drop and regrowth inhibition.

Timing of Application - Apply this product or these tank mixtures for preharvest weed control after 60 percent of the cotton bolls have opened.

NOTE: DO NOT-APPLY TO CROPS GROWN FOR SEED. Allow a minimum of 7

days between application and harvest. Do not feed or graze
treated cotton-forage or hay following preharvest
applications.

This product provides weed control and cotton regrowth inhibition when applied prior to the hervest of cotton. Apply 1 to 2 quarts of this product plus 0.5 to 1 percent nomionic surfactant by total spray volume in 3 to 10 gallons of water per acressfor cotton regrowth inhibition.

This product may be tank mixed with DEFP 6, Folex? // or Prep to provide additional enhancement of cotton leaf drop.

Allow a minimum of days between application and harvest of

Apply after sufficient bolls have developed to produce the desired vield of cotton. Applications made prior to this time could affect maximum yield potential.

Do not feed or graze treated cotton forage or hay following preharyest applications

PHEAT

Apply after the havit-dough stage of grain (30% or less grain moisture) and at least / days prior to harvest;

DO NOT ADDLY MORE THAN I DIARY PEH ACRE OF FILS PRODUCT FOR DREHARVEST ADDLICATIONS TO WHEAT.

TREE AND VINE CROPS

This product is recommended for weed control in established groves, vineyards, and orchards, or for site preparation prior to transplanting crops listed in this section. Applications may be made with boom equipment, CDA, shielded sprayers, hand-held and high-volume wands, lances, orchard guns or with wiper applicator equipment, except as directed in this section. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for specific information on use of equipment.

When applying this product, refer to the "WEEDS CONTROLLED" section of this label and to specific recommendations in this section for rates to be used.

NOTE

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual weed control. For subsequent weed control, use repeated applications of this product. Do not apply more than 10.6 quarts of this product per acre per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

AVOID PAINTING OUT STUMPS WITH THIS PRODUCT AS INJURY RESULTING FROM ROOT GRAFTING MAY OCCUR IN ADJACENT TREES.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

For specific rates of applications and instructions, see the "WEEDS CONTROLLED" section of this label, and to specific recommendations which follow.



MIDDLES MANAGEMENT

FOR ANNUAL WEEDS IN MIDDLES BETWEEN ROWS OF TREE AND VINE CROPS

For citrus crops, treat uniformly between trees.

		Rot	qubat	
•	٠	Roundup	plus	GOAL

This product alone or in mixtures with Goal will control or suppress the annual weeds listed below.

Apply the recommended rates of this product, either alone or in mixtures with Goal, plus 0.5 to 1 percent nonionic surfactant by spray volume in 3 to 10 gallons of water per acre. Apply when weeds are actively growing and less than 6 inches in height or diameter. If weeds are under drought stress, irrigate prior to application. Reduced control may occur if weeds have been mowed prior to application. Up to 48 fluid ounces per acre of this product may be used to control weeds, which have been mowed, are stressed or are growing in dense populations.

WEED SPECIES	MAXIMUM HEIGHT/DIAMETER (INCHES)	Roundup	TE PER ACRE GOAL (FLUID OUNCES)
Barley Hordeum vulgare Bluegrass, annual Poa annua	6	8	
Barnyardgrass Echinochloa crus Chickweed, common Stellaria media Red Maids Calandrinia cili		12	
Crabgrass Digitaria spp. Fleabane, flamleaf Conyza bonariens		16	OR
Groundsel, common Senecio vulgaris Junglerice Echinochloa colo		16 to 32	+ 4 to 16**

Lambsquarters, common
Chenopodium album
Pigweed, redroot
Amaranthus retroflexus
Rocket, London
Sisymbrium irio
Ryegrass, common
Lolium multiflorum
Shepherdspurse
Capsella bursa-pastoris
Sowthistle annual

Sowthistle, annual Sonchus oleraceus

Cheeseweed, common Malva spp.	3	12 to 32	+	4 to 16
Cheeseweed, common Malva spp.	6	16 to 32	+	4 to 16
Filaree* Erodium spp.	•			
Horseweed/Marestail Conyza canadensis		•		
Nettle, stinging Urtica dioica				
Purselane, common* Purtulaca oleracea				

^{*} Suppression only.

STRIPS

FOR ANNUAL AND PERENNIAL WEEDS IN STRIPS OF TREE AND VINE CROPS

TANK MIXTURES WITH RESIDUAL HERBICIDES

When applied as a tank mixture, this product provides control of the emerged annual weeds and control or suppression of emerged perennial weeds listed in this label. The following residual herbicides will provide preemergence control of those weeds listed in the individual product labels.

	Roundup plus GOAL 1.6E	
	Roundup plus KARMEX DF	
	Roundup plus KROVAR I	•
•	Roundup plus KROVAR II	•

^{**}The mixture of this product plus Goal is recommended when weeds are stressed or growing in dense populations.

•	Roundup plus SIMAZINE, PRINCEP CALIBER 90	•
	Roundup plus SIMAZINE 4L	=
	Roundup plus SIMAZINE 80W	
.	Roundup plus SOLICAM 80DF	•
1	Roundup plus SURFLAN AS	
	Roundup plus SURFLAN 75W	
■	Roundup plus SIMAZINE OW, or 4L, or PRINCEP CALIBER 90) plus SURFLAN (AS or 75W)	•
•	Roundup plus GOAL (1.6E) plus SURFLAN (AS or 75W)	
•	Roundup plus GOAL (1.6E) plus SIMAZINE	•
	OW, or 4L, or PRINCEP CALIBER 90)	_
	Roundup plus GOAL (1.6E) plus SURFLAN (AS or 75W) plus SIMAZINE (80W, 4L, or PRINCEP CALIBER 90)	

Do not apply these tank mixtures in Puerto Rico.

When tank-mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution.

Refer to the individual product labels for specific crops, rates, geographical restrictions and precautionary statements.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the labels of all products.

RECOMMENDED RATES

Annual Weeds - Apply 1 to 5 quarts per acre of this product in these tank mixtures. Use rates at the higher end of the recommended range when weeds are stressed, growing in dense populations or are greater than 12 inches tall.

Perennial Weeds - Apply 1 pint to 5 quarts per acre of this product

in these tank mixtures to control or suppress perennial weeds. Follow the recommendations in the "WEEDS CONTROLLED" section of this label for stage of growth and application rates for specific perennial weeds.

Roundup plus GOAL plus SIMAZINE/SURFLAN

This product plus low rates of Goal in 3-way or 4-way mixtures with simazine and/or Surflan will provide postemergence control of the weeds listed below.

Refer to the individual simazine and Surflan labels for preemergence rates, weeds controlled, precautionary statements and other important information.

Apply these tank mixtures in 3 to 40 gallons of water. Add 0.5 to 1 percent nonionic surfactant by total spray volume to the spray solution.

Apply 1 to 5 quarts per acre of this product plus 4 to 48 fluid ounces per acre of Goal plus labeled rates of simazine and/or Surflan to control the following weeds:

Barley, wild Hordeum leporinum Bluegrass, annual Poa annua Cheeseweed, common Malva spp. Chickweed, common Stellaria media Filaree* Erodium spp. Fleabane, flaxleaf hairy Conyza bonariensis" Groundsel, common Senecio vulgaris Borseweed/Marestail Conyza canadensis Nettle, stinging Urtica dioica Pineappleweed Matricaria matricariodes Rocket, London Sisymbrium irio Shepherdspurse Capsella bursa-pastoris Sowthistle, annual Sonchus oleraceus

*Use a minimum of 1.5 quarts of this product in these mixtures.

NOTE: This recommendation does not preclude the use of Goal in these mixtures at higher, labeled rates for preemergence weed control.

PERENNIAL GRASS SUPPRESSION ORCHARD FLOORS

When applied as directed, this product will suppress vegetative growth as indicated below.

Bahiagrass

This product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with a single application and approximately 120 days with sequential applications. Apply this product 1 to 2 weeks after full green-up or after mowing to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus nonionic surfactant may be made at approximately 45-day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces may be made approximately 45 days after the last application.

Bermudagrass

For burndown, apply 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre. Use 1 quart of this product in 3 to 20 gallons of water per acre east of the Rocky Mountains. Use 1 to 2 quarts of this product in 3 to 10 gallons of water per acre west of the Rocky Mountains. Use this treatment only if reduction of the bermudagrass stand can be tolerated. When burndown is required prior to harvest, allow at least 21 days to ensure sufficient time for burndown to occur.

Suppression only (east of the Rocky Mountains)—Apply 6 to 16 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Rates of 6 to 10 fluid ounces of this product plus nonionic surfactant should be used in shaded conditions or where a lesser degree of suppression is desired. Sequential applications may be made when regrowth occurs and bermudagrass injury and stand reduction can be tolerated.

Suppression only (west of the Rocky Mountains)—Apply 16 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by

recommended stage of growth.

S = Suppression B = Burndown PC = Partial control C = Control

WEED	Ro	undup RA	TE PER A	CRE
SPECIES	1 <u>q</u> t	2 qts	3 qts	5 qts
Bermudagrass	В	•	PC	С
Guineagrass Texas and Florida Ridge	В	. C	С	С .
Florida Flatwoods	•	В	С	С
Paragrass	В	С	С	С
Torpedograss	•	•	PC	С

TREE CROPS

Citrus*: calamondin, chironja, citron, grapefruit, kumquat, lemon, lime, mandarin orange, orange, pummelo, tangelo, tangerine, tangors.

Nuts**: almond, beechnut, Brazil nut, butternut, cashew, chestnuts, chinquapin, filbert, hazel nut, hickory nut, macadamia, pecan, pistachio, walnut.

Pome Fruit*: apple, loquat, mayhaw, pear, quince.

Stone Fruit***: apricots, cherries, nectarines, olives, peaches,
plums/prunes.

For cherries, any application equipment listed in this section may be used in all states.

For citron and olives, apply as a directed spray only.

Any application equipment listed in this section may be used in apricots, nectarines, peaches and plums/prunes growing in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Texas, Utah and Washington, except for peaches grown in the states specified in the following paragraph. In all other states use wiper equipment only.

For PEACHES grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee only, apply with a shielded boom sprayer or shielded wiper applicator, which prevents any contact of this product with the foliage or bark of trees. Apply no later than 90 days after first bloom. Applications made after this time may result in severe damage. Remove suckers and low-hanging limbs at least 10 days prior to application. Avoid applications near trees with recent pruning wounds or other mechanical injury. Apply only near trees which have been planted in the orchard for 2 or more years. EXTREME CARE MUST

BE TAKEN TO ENSURE NO PART OF THE PEACH TREE IS CONTACTED.

Tropical Fruit: acerola*, atemoya*, avocado*, banana*
(plantains)****, breadfruit*, canistel*, carambola*,
cherimoya*, cocoa beans*, coffee****, dates*, figs*, genip*,
guava*****, jaboticaba*, jackfruit*, longan*, lychee*, mango*,
mayhaw*, papaya*****, passion fruit*, persimmons*,
pomegranate*, sapodilla*, sapote*, soursop*, sugar apple*,
tamarind*, tea*. In coffee and banana, delay applications 3
months after transplanting to allow the new coffee or banana
plant to become established.

NOTE:

- * Allow a minimum of 14 days between last application and harvest.
- ** Allow a minimum of 21 \$\mathbb{O}\$ days between last application and harvest of these crops, except pistachio nuts. For pistachio nuts allow a minimum of 21 days between last application and harvest.
- *** Allow a minimum of 17 days between last application and harvest.
- ****Allow a minimum of 28 days between last application and harvest.
- *****Allow a minimum of 1 day between last application and harvest.

VINE CROPS

Kiwi Fruit

Grapes: Any variety of table, wine or raisin grape may be treated with any equipment listed in this section.

Applications should not be made when green shoots, canes, or foliage are in the spray zone.

Allow a minimum of 14 days between last application and harvest.

In the northeast and Great Lakes regions, applications must be made prior to the end of bloom stage of grapes to avoid injury.



®Bullet, Lasso, Micro-Tech, Partner, Roundup and Lariat are registered trademarks of Monsanto Company.

™Oust, Krovar, Escort, Telar, Canopy, Gemini, Lexone, Lorox Plus, Preview and Karmex are trademarks of E.I. duPont de Nemours and Company.

[™]Dual, Bicep, Princep and Caliber are trademarks of Ciba-Geigy Corporation.

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™Banvel and Solicam are trademarks of Sandoz, Inc.

™Ronstar, Folex and Prep are trademarks of Rhone-Poulenc, Inc.

[™]Goal is a trademark of Rohm and Haas Company.

™Sencor and Turbo are trademarks of Bayer AG.

™Prowl, Pursuit, Pursuit Plus, Scepter and Squadron are trademarks of American Cyanamid Company.

™Command is a trademark of FMC Corporation.

™DEF is a trademark of Mobay Chemical Company.

This product is protected by

U.S. Patent No. 4,405,531.
Other patents pending.
No license granted under any non-U.S. patent(s).

EPA Reg. No. 524-445

A-000.01

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

OMONSANTO COMPANY 1994

MONSANTO COMPANY AGRICULTURAL PRODUCTS ST. LOUIS, MISSOURI, 63167 U.S.A.

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APR - 6 1994

Dr. Sheila A. Schuette
Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, DC 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Revise Booklet) EPA Registration No. 524-445 Your Application Dated March 8, 1994

The amendment referred to above, submitted in connection with registration under Section 3(c)(7)(A) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), is acceptable provided that you:

- 1. Submit/cite all data required for registration/reregistration of your product under FIFRA Section 3(c)(5) or 4(a) when the Agency requires all registrants of similar products to submit such data.
- 2. Submit production information (pounds or gallons produced) for this product for the fiscal year in which the use on celeriac is conditionally registered, in accordance with FIFRA section 29. The fiscal year begins October 1 and ends September 30. Production information will be submitted to the Agency no later than November 15, following the end of the preceding fiscal year.

This information should be submitted to:

U.S. Environmental Protection Agency Office of Pesticide Programs (H7504C) Document Processing Desk (RSB) 401 M Street SW., CM#2 Washington, DC 20460

3. Submit five (5) copies of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Sincerely,

Robert J. Taylor

Product Manager 25
Fungicide-Herbicide Branch
Registration Division (H7505C)

Please read instructions on reverse before completing form.	Form Approved. OMB No. 2070-0060. Approval expires 11-30-93
(A) United States Environmental Pro	
(A) SEPA United States Environmental Pro-Office of Pesticide Program Washington, DC 20 Application for F	\$ (173030)
Application for F	Pesticide: Other 207800
Section	
Company/Product Number	EPA Product Manager Toposed Classification
524-445	Robert J. Taylor
4. Company/Product (Name)	PM# 25 Restricted
Roundup® Herbicide	
5. Name and Address of Applicant (Include ZIP Code)	6. Expedited Review. In accordance with FIFRA Section 3(c)(3)
Monsanto Company	(b)(i), my product is similar or identical in composition and labeling
700 l4th Street, N.W., Suite 1100 Washington, D.C. 20005	to:
washington, b.c. 20005	EPA Reg. No
Check if this is a new address	Product Name
Section	[]
Amendment - Explain below	Final printed labels in response to
Resubmission in response to Agency letter dated	Agency letter dated
<u> </u>	Me T∞ Application.
Notification - Explain below.	Other - explain below.
Explanation: Use additional page(s) if necessary. (For section I and	d Section II.)
	·
Submission of amended label bookle	et.
Contract II	_
Section III 1. Material This Product Will Be Packaged In:	<u> </u>
	ter Soluble Packaging 2. Type of Container
Yes* Yes] Yes Metal
X No X No	X Plastic
	Paper
	/es," No. per Other (Specify)
submitted.	
3. Location of Net Contents Information 4. Size(s) of Retail	Container 5. Location of Label Directions On Label
Label x Container various	On Labeling accompanying product
6. Manner In Which Label Is Affixed To Product Lithograph Paper glued	X Other (vinyl glued)
Stendled Stendled	
Section Contact Point (Complete items directly below for identification of in	
Name Title	Telephone No. (Include Area Code)
D- Dunell D Cab-22-	Agricultural Regulation
	Director (202) 783-2460
Certification	Date Application
I certify that the statements I have made on this form and all attached acknowledge that any knowingly false or misleading statement m	ments thereto are true, accurate and complete. Received (Stamped)
both under applicable law.	ay on punishable by line of impradminer, () () () () () () ()
2. Signature 3. Title	
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4. Typed Name / 5. Dat	
Sheila A. Schuette, Ph.D.	march 8, 1994

United States Environmental Protection Agency Washington, DC 20460

Certification with Respect to Citation of Data

Form Approved OMB No. 2070-0060 Approval Expires 11-30-93

Applicants Name and Address	EPA File Symbol/Registration Number			
Monsanto Company	524-445			
Applicants Name and Address Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005	Product Name			
	Roundup® Herbicide			
	Date of Application March 8, 1994			

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

- 1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of approprial of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)
- 2. I certify that, for each study cited in support of this application for registration that is an exclusive use study,
 - X I am the original submitter*; or
 - I I have obtained the written permission of the original data submitter to cite that study.
- 3. I certify that, for each study cited in support of this application for registration that is not an exclusive use study:
 - a. | I am the original data submitter; or
 - I have obtained the written permission of the original data submitter to cite that study*; or
 - b. | | I have notified in writing the companies that have submitted data I have cited to support this application and have offered to: (a) Pay compensation for those data in accordance with section 3(e)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)
 - All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)
 - 1 Those companies that have submitted the studies which I have cited (Selective method*).
 - * A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the cite-all method.)

Stula a Schrette	Name and Title Sheila A. Schuette, Ph.D. Manager, Regulatory Affairs	march 6, 1994		
persons, with reg	to Pay: I hereby offer and agree to pay compension to the approval of this application, to the extension	ntion to other nt required.		·
Signature	Name and Title	Date	70	

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

1. 1.5.

March 8, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup® Herbicide (EPA Reg. No. 524-445)

Amended Label Booklet

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of an amended label booklet for Roundup herbicide. This label is based on the Roundup herbicide label that was previously approved by the Agency on December 17, 1992; strike-outs indicate text to be deleted in the amended label, while new text to be added is highlighted. In addition to minor wording changes that do not affect product use, the following important changes have been made to the amended label:

- √1. We have removed the reference to the one-quart homeowner product in the warranty statement, since it is not applicable to this label booklet, p. 1.
- Statements required by the Worker Protection Standard are highlighted on pp.
 3-5; this language was previously accepted by the Agency on January 14, 1994.
- A. The common name for conyza bonariensis has been corrected to read hairy fleabane; it was erroneously given as flaxleaf fleabane, pp. 25, 88, and 91.

- V4. The following perennial weeds have been added to the list of weeds controlled: anise, ice plant, lespedeza, poison hemlock, yellow starthistle, artichoke thistle and velvetgrass, pp. 26-37.
- 5. The following woody brush and trees have been added to the list of plants controlled: beech, blackgum, bracken, dogwood, gorse, hickory, Florida holly (Brazilian peppertree), American hornbeam, pine, eastern redbud, white sage, salt cedar and southern waxmyrtle, pp. 38-42.
- The maximum annual application rate for non-crop uses has been repeated on page 45 for clarity.
- 7. Pipelines, power and telephone rights-of-way have been removed from the list of public areas where this product can be used, p. 45. The use for preparation of forestry sites has also been deleted, pp. 45-46.
 - On page 48, we have referred the user to the hand-held equipment section for information on rates to use with backpack sprayers and handgun applicators, and deleted the statement that only conventional broadcast equipment can be used for these tank mixtures.
- 9. Tree nurseries have been added to the section on ornamentals and Christmas trees, pp. 50-51.
- 19. The silvicultural sites and rights-of-way section has been removed from the label, pp. 52-58. We have elected not to print this section in the past since other glyphosate products are formulated specifically for this type of application.
- 11. The instructions for making applications to crops not listed on the label have been re-written for clarity, p. 69.
- 12. Celeriac has been added to the crop list under vegetables, p. 71; a tolerance for glyphosate on this crop was established by the Agency on November 24, 1993 at the request of IR-4 (58 FR 62036).
- 13. Shallots have also been added to the vegetable crop list, p. 72. The definition for dry bulb onion was expanded to include shallots on December 8, 1993 (58 FR 64496).
- M. Several changes have been made to the selective equipment section on p. 74. The use of wipers on wheat was approved by the Agency on June 17, 1993. A supplemental label was stamped and we are now including the use in the label booklet. The preharvest interval for tree nuts (except pistachios) has also been reduced from 21 days to 1 day, based on the Agency's approval of a

Roundup[®] Amended Label March 8, 1994 Page 3

supplemental label on June 17, 1993.

- 16. The berries and small fruits sections, pp. 75-76, has been revised to allow wipers to be used in cranberries prior to fruit set. The entire section has also been rewritten for clarity.
- 16 A section on postharvest control of grain sorghum has been added, p. 80.
- 17. The section on sugarcane has been updated to allow applications prior to the emergence of plant cane, p. 81. This use was approved by the Agency on May 26, 1993.
- 18. The preharvest applications section, pp. 84-87, has been updated to include wheat; this use was approved by the Agency on June 17, 1993. We have also grouped all of the statements that are relevant to all crops at the beginning of the section, then provided specific instructions for each crop. The timing of application to cotton has been modified to allow earlier applications; a warning about possible reduced yield is included.

19. The preharvest interval for tree nuts has been also been updated on p. 95.

Monsanto requests that the Agency approve and stamp the enclosed label. The list of data supporting the uses on this amended label can be found in MRID 42155300, which was submitted to the Agency on January 3, 1992. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed. If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D.

Manager, Regulatory Affairs

Shula a. Saluette

(314) 694-7248

cc: R.P. Schneider L.L. Gingerich D.M. Fee-White VDB - & 100V

Dr. Sheila A. Schuette Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Pinal Printed Label With WPS and Other Changes)
EPA Registration No. 524-445
Your Application Dated December 21, 1993

The labeling referred to above, submitted in connection with the registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. A stamped copy of labeling is enclosed for your records.

Sincerely,

Robert J. Taylor

Product Manager 25

Fungicide-Herbicide Branch
Registration Division (H7505C)





Complete Directoristor Use

EPA Reg. No. 524-445

AVOID CONTACT WITE AGE, GREEN
STEMS, EXPOSED NO WOODY ROOTS
OR FRUIT OF CROPS, DESIRABLE PLANTS
AND TREES, SINCE SEVERE INJURY OR
DESTRUCTION MAY RESULT.

ROUNDING IS A CREINFACT MARKET ALL MOSESTE

*Roundup is a registered trademark of Monsanto Company

1993-2

898.07-000.29/53

Read each of these sections of this label for essential product performance information.

USE THESE CONVENIENT SECTION MARKERS.



Read the entire label before using this product.

Use only according to label instructions.

Read "LIMIT OF WARRANTY AND LIABILITY" before buying or using. If terms are not acceptable, return at once unopened. REFORMULATION IS PROHIBITED. SEE INDIMIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

LIMIT OF WARRANTY AND LIABILITY

This Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use tabel booklet ("Directions") when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This washing in also subject to the conditions and limitations stated breein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

Buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather

conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABRITY OF THIS COMPANY OR ANY OTHER SELEER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, IN NO EYENT CHASE, REPLACEMENT OF SUCH QUANTITY, IN NO EYENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANIY AND LIABILITY which may not be varied by any verbal or written agreement.

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PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Keep out of reach of children.

WARNING! AVISO!

Si usted no entiende la etiqueta, busque a alguien cara que se la explique a usted en detalle. (Il you do not understand the label, find someone to explain it to you in detail.)

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY

MARMFUL IF SWALLOWED OR INHALED

Do not get in eyes or on clothing.

Avoid breathing vapor or spray mist.

FIRST AID: IF IN EYES, immediately hold eyelids open and flush with plenty of water for at least 15 minutes. Get medical attention.

IF INHALED, remove individual to fresh air, if not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

IF SWALLOWED, this product will cause gastrointestinal tract irritation, Immediately dilute by swallowing water or milk. Get medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

Personal Protective Equipment

Applicators and other handlers must wear long-sleeved shirt and long pants, shoes plus socks, and protective eyewear. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. On not reuse them, follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170,240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations:

Users should:

- · Wash hands before eating, drinking, chewing gum, using topacco, or using the toilet.
- · Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

In case of an emergency involving this product. Call Collect, day or night, (314) 694-4000.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark.

Do not contaminate water when disposing of equipment. washwaters.

Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied using only stainless steel, atuminum, fiberglass, plastic or plastic-lined steel containers.

DO NOT MIX. STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal. injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

ACTIVE INGREDIENT:

*Glyphosate, N-(phosphonomethyl)glycine, in the form of its isopropytamine saft,

41.0% INERT INGREDIENTS: 59.0% 100 0%

*Contains 480 grams per litre or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per litre or 3 pounds per U.S. gallon of the acid, glyphosate.

This product is protected by U.S. Patent No. 4,405,531. Other patents pending. No license granted under any non-U.S. natent(s).

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DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agreen-houses, and the protection of agreen-houses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this bor only apply to uses of this product that are covered by the Worker Protection Standard.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

On not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: coveralls, waterproof gloves, shoes plus socks, and protective eyewear.

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOI within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on larms, forests, nurseries or greenhouses.

Keep people and pets off treated areas until spray solution has dried,

For more product information, call toll-free 1-800-332-3111.

Storage and Disposal

Do not contaminate water, foodstuffs, leed or seed by storage or disposal

See container label for STORAGE AND DISPOSAL instructions.

GENERAL INFORMATION

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIP-MENT EXCEPT UNDER CONDITIONS AS SPECIFIED WITHIN THIS LABEL.

This product, a water soluble liquid, mixes readily with water to be applied as a foliar spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field-type sprayers after dilubon and thorough mixing with water in accordance with label instructions.

This product moves through the plant from the point of foliage contact to and into the root system. Yisible effects on most annual weeds occur within 2 to 4 days, but on most perennial

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weeds may not occur for 7 days or more. Extremely cool or cloudy weather lothowing treatment may slow activity of this product and delay visual effects of control Visible effects are a gradual withing and yellowing of the plant which advances to complete browning of above-ground growth and deterioration of underground yellot parts.

Unless otherwise specified on this label, delay application until vegetation has emerged and reached the stages described for control of such vegetation under the "WEEDS CONTROLLED" section of this label. Unemerged plants arising from unattached underground rhizomes or root stocks of perennials will not be affected by the herbicide and will continue to grow. For this reason, best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per acre within the recommended range when (1) weed growth is heavy or dense, or (2) weeds are growing in an undisturbed (noncultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed, or cut, and have not been allowed to regrow to the recommended stage for treatment.

Rainfall or irrigation occurring within 6 hours after application may reduce effectiveness. Heavy rainfall or irrigation within 2 hours after application may wash the chemical off the foliage and a repeat treatment may be required.

This product does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly recommended in this labeling. Mixing this product with herbicides or other materials not recommended on this label may result in reduced performance.

For best results, spray coverage should be uniform and complete. On not spray weed foliage to the point of nunoff.

OOMESTIC ANIMALS: This product is considered to be relatively normalic to dogs and other domestic animals; however, ingestion of this product or large amounts of freshly sprayed vegetation may result in temporary gastrointestinal imitation (vomiting, diarrhea, colic, etc.). If such symptoms are observed, provide the animal with plenty of fluids to prevent dehydration. Call a veterinarian if symptoms persist for more than 24 hours.

ATTENTION

AVOID DRIFT, EXTREME CARE MUST BE USED WHER APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of injury occurring from the use of this product is greatest when winos are gusty or in excess of 5 miles per hour or when other conditions, including lesser wind velocities, will allow spray drift to occur. When spraying avoid combinations of pressure and nozale type that will result in splatter or line particles (mist) which are likely to drift. AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.

NOTE: Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent soills and contamination.

MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES. DO NOT APPLY WHEN WIND OR OTHER CONDITIONS FAVOR DRIFT, HAND-GUN APPLICATIONS SHOULD BE PROPERLY DIRECTED TO AVOID SPRAYING DESIRABLE PLANTS. NOTE: REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

MIXING

This product mixes readily with water. Mix spray solutions of this product as follows: Fill the mixing or spray tank with the required amount of water. Add the recommended amount of this product (see the "DIRECTIONS FOR USE" and "WEEDS CONTROLLED" sections of this label) near the end of the filling process and mix well. Remove hose from tank immediately after filling to avoid siphoning back into the carrier source. During mixing and application, foaming of the soray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, terminate by-pass and return lines at the bottom of the tank and, if needed, use an approved antifoam or defoaming agent.

TANK MIXTURES

Always predetermine the compatibility of labeled tank mixtures of this product with water carrier by mixing small proportional quantities in advance.

Mix labeled tank mixtures of this product with water as follows:

- Place a 20 to 35 mesh screen or weiting basket over filling port.
- Through the screen, fill the spray tank one-half full with water and start agitation.
- If a wettable powder is used, make a slurry with the water carrier, and add if SLOWLY through the screen into the lank. Continue agitation.

- If a flowable formulation is used, premix one part flowable with one part water. Add dituted mixture SLOWLY through the screen into the tank. Continue agilation.
- If an emulsifiable concentrate formulation is used, premix one part emulsifiable concentrate with two parts water. Add diluted mixture slowly through the screen into the tank. Continue agitation.
- Continue filling the spray tank with water and add the required amount of this product near the end of the filling namess.
- Where nonionic surfactant is recommended, add this to the spray tank before completing the lilling process.
- Add individual formulations to the spray tank as follows: wettable powder, flowable, emulsifiable concentrate, drift control additive, water soluble liquid followed by surfaclant.

Maintain good agitation at all times until the contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed.

Keep by-pass line on or near bottom of tank to minimize foaming. Screen size in nozzle or tine strainers should be no finer than 50 mesh. Carefully select proper nozzle to avoid spraying a fine mist. For best results with conventional ground application equipment, use flat fan nozzles.

Clean sprayer and parts immediately after using this product by thoroughly flushing with water.

ADDITIVES

SURFACTANTS

Nonionic surfactants which are labeled for use with herbicides may be used. Do not reduce rates of this product when adding surfactant. When adding additional surfactant, use 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration (4 quarts per 100 gallons of spray solution) for those surfactants containing less than 70 percent active ingredient. Read and carefully observe surfactant cardionary statements and other information appearing on the surfactant tabel.

AMMONIUM SULFATE

The addition of 1 to 2 percent dry ammonium suffate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product, and this product plus 2,4-D. Banvel® or residual herbicide tank mixtures on annual and perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Low-quality ammonium suffate may contain material that will not readily dissolve, which could result in nozzle tip plugging. To determine quality, perform a jar test by adding 1/3 cup of ammonium suffate to 1 gallon of water and agitate for 1 minute. If undissolved sediment is observed, predissolve the ammonium suffate is added directly to the spray tank. If ammonium suffate is added directly to the spray tank, add slowly with agitation. Adding too quickly may clog

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outlet line. Ensure that ammonium sultate is completely dissolved in the spray tank before adding herbicides or surfactank, Thoroughly rinse the spray system with clean water after use to reduce comosion.

NOTE: The use of ammorium sullate as an additive does not preclude the need for additional surfactant. Do not use herbicide rates lower than recommended in this label.

COLORANTS OR DYES

Agriculturally-approved colorants or marking dyes may be added to this product. Colorants or dyes used in spray solutions of this product may reduce performance, especially at lower rates or didutions. Use colorants or dyes according to the manufacturer's recommendations.

APPLICATION EQUIPMENT AND TECHNIQUES

Do not apply this product through any type of imigation system.

This product may be applied with the following application equipment:

Aerial-Fixed Wing and Helicopter

Broadcast Spray

Controlled Oroplet Applicator (CDA)—Hand-held or boommounted applicators which produce a spray consisting of a narrow range of droplet sizes.

Hand-Held and High-Yolume Spray Equipment—Knapsack and backpack sprayers, pump-up pressure sprayers, hand-

guns, handwands, mistblowers*, lances and other hand-held and motorized spray equipment used to direct the spray onto weed tobage.

This product is not registered in California or Arizona for use in misthlowers.

Selective equipment—Recirculating sprayers, shielded sprayers and wiper applications.

See the appropriate part of this section for specific instructions and rates of application.

AERIAL EQUIPMENT

Use the recommended rates of this herbicide in 3 to 15 gallons of water per acre unless otherwise specified on this label. See the "WEEDS CONTROLLED" section of this label for specific rates. Unless otherwise specified, do not exceed 1 quart per acre. Aerial applications of this product may be made in annual cropping conventional tillage systems, fallow and reduced tillage systems, and preharvest. Refer to the individual use area sections of this label for recommended volumes and application rates. FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

Avoid direct application to any body of water.

AYORD DRIFT—DO NOT APPLY DURING INVERSION CONDITIONS, WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITION

WHICH FAYORS DRIFT, DRIFT MAY CAUSE DAMAGE TO ANY VEGE-TATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED, TO PREVENT BUIRT TO ADJACENT DESTRABLE VEGE-TATION, APPROPRIATE BUIFTER ZONES MUST BE MAINTAINED.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Drift control addrives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the addrive label.

Ensure uniform application—To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during swaying or from spills. PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE. The maintenance of an organic coating (paint), which meets aerospace specification MIL-C-38413, may prevent corrosion.

This product plus Qust*, Banvel or 2,4-D tank mixtures may not be applied by air in California.

BROADCAST EQUIPMENT

for control of annual or perennial weeds listed on this label using broadcast equipment—Use the recommended

rates of this product in 3 to 40 gallons of water per acre as a broadcast spray unless otherwise specified on this label. See the "WIEDS CONTROLLED" section of this label for specific rates. As density of weeds increases, spray volume should be increased within the recommended range to ensure complete coverage. Carefully select proper nozzle to avoid soraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray dropfets.

CONTROLLED DROPLET APPLICATION (CDA)

The rate of mis product applied per acre by wehicle-mounted CDA equipment must not be less than the amount recommended in this tabel when applied by conventional brussicast equipment. For vehicle-mounted CDA equipment, apply 3 to 15 gallons of water per acre.

For the control of labeled annual weeds with hand-held CDA units, apoly a 20 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 1.5 MPH (1 quart per acre). For the control of labeled perennial weeds, apply a 20 to 40 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 0.75 MPH (2 to 4 quarts per acre).

Controlled droplet application equipment produces a spray pattern which is not easily visible. Extreme care must be exercised to avoid spray or drift contacting the foliage or any other green bissue of desirable vegetation, as damage or destruction may result.

HAND-HELD and RIGH-VOLUME EQUIPMENT

Use coarse sprays only.

Mix this product in clean water and apply to loliage of vegetation to be controlled. For applications made on a spray-to-wet basis, spray coverage should be uniform and complete. Do not spray to the point of runoff.

For control of annual weeds listed on this label, apply a 0.5 percent solution of this product plus nonionic surfactant to weeds less than 6 inches in height or runner length. Apply prior to seedhead formation in grass or bud formation in broadteat weeds. Allow three or more days before billage or moving.

For annual weeds over 6 inches tall, pr when not using additional surfactant, or unless otherwise specified, use a 1 percent solution. For best results, use a 2 percent solution on harder-to-control perennials, such as bermudagrass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

When using application methods which result in less than complete coverage, use a 5 percent solution for annual and perennial weeds and a 5 to 10 percent solution for woody brush and trees.

Prepare the desired volume of soray solution by mixing the amount of this product in water as shown in the following table.

Spray Solution

Desired						
Valume	И%	1%	Ount of Ro	2%	5%	10%
i Gai 25 Gai 100 Gai 2 tablespo	35 az 1 pl 2 ql 200s ≃	15 oz 1 at 1 gal 1 fluid oun	2 oz I Skot I Skogal I Skogal	23á oz 2 qt 2 gal	61% oz 5 qt 5 gai	

For use in knapsack sprayers, it is suggested that the recommended amount of this product be mixed with water in a larger container. Fill sprayer with the mixed solution.

SELECTIVE EQUIPMENT

This product may be applied through a recirculating spray system, a shielded applicator, or a wiper applicator after dilution and thorough mixing with water to listed weeds growing in any noncrop site specified on this label and only when specifically recommended in cropping systems.

A recirculating spray system directs the spray solution onto weeds growing above desirable vegetation, while spray solution not intercepted by weeds is collected and returned to the spray tank for reuse.

A shielded applicator directs the herbicide solution onto weeds, while shielding desirable vegetation from the herbicide.

A wiper applicator applies the herticide solution onto weeds by rubbing the weed with an absorbent material containing the harbicide solution.

AVOID CONTACT WITH DESIRABLE VEGETATION.

Contact of the herbicide solution with the desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that the lowest spray stream or wiper contact point is at least 2 inches above the desirable vegetation. Droplets, mist, loarn, or splatter of the herbicide solution setting on desirable vegetation may result in discoloration, stunting or destruction.

Applications made above the crops should be made when the weeds are a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe intestations or when the height of the weeds varies so that not all weeds are contacted, in these instances, repeat treatment may be necessary.

SHIELDED APPLICATORS

When applied as directed under conditions described for shielded applicators, this product will control those weeds listed in the "WEEDS CONTROLLED" section of this label.

Use the following equation to convert from a broadcast rate per acre to a band rate per acre.

Band width in inches	 Herbicide Broadcast	=	Herbicide Band RATE
Row width	RATE		bet scre
in inches	per acre		

Band width		Broadcast		Band
in inches	X	VOLUME of	=	VOLUME
Raw width		solution		of solution
in inches		GPT ACID		OHE SCIE

Use nozzles that provide uniform coverage within the treated area. Xeep shields on snielded sprayers adjusted to protect desirable vegetation. DATREME CARE MUST BE EXERCISED TO AVOID CONTACT WITH DESTRABLE VEGETATION.

For specific rates of application and instructions for control of various annual and perential weeds, see the "WEEDS CON-IROLLED" section of this label.

WIPER APPLICATORS

Wiper applicators are devices that physically wipe appropriate amounts of this product directly onto the weed.

Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Operate this equipment at ground speeds no greater than 5 mph. Performance may be improved by reducing speed in areas of heavy weed intestations to ensure adequate wiper saturation. Better results may be obtained if 2 applications are made in opposite directions.

Avoid leakage or dripping onto desirable vegetation. Adjust height of applicator to ensure adequate contact with weeds. Keep wiping surfaces clean. Be aware that on stopping ground, the herbicide solution may migrate, causing dripping on the lower end and drying of the wicks on the upper end of a wiper applicator.

Do not use wiper equipment when weeds are wet.

Mix only the amount of solution to be used during a 1-day period, as reduced activity may result from use of leftover solutions. Clean wiper parts immediately after using this product by thoroughly flushing with water.

Do not add surfactant to the herbicide solution.

For Rope or Sponge Wick Applicators—Mix 1 gallon of this product in 2 gatlons of water to prepare a 33 percent solution. Apply this solution to weeds listed in this "WPER APPEICATORS" section.

For Porous-Plastic Applicators—Solutions ranging from 33 to 100 percent of this product in water may be used in porous-plastic wiper applicators.

When applied as recommended under the conditions described for "WIPER APPLICATORS", this proceed CONTROLS the following weeds:

ANNUAL GRASSES

Com

Rye, camman

Zea mays

Secale cereale

Panicum, Texas
Panicum texanum

Shattercane Sorghum bicolor

ANNUAL BROADLEAVES

Sickleped

Starbur, bristly

Cossía obtusilatia

Acanthospermum hispidum

Spanishneedles

Sidens bipinnata

When applied as recommended under the conditions described for "WIPER APPLICATORS", this product SUP-PRESSES the following weeds:

ANNUAL BROADLEAVES

Beggarweed, Florida

Ragweed, giant

Desmodium tortuosum

Ambrosia tulida

Dogtennel Eupatorium capilliflorium

Sunflower

Pigweed, redroot

Helianthus annuus

Amaraninus retroflexus

Thistle, musk Carduus nutans

O-----

Velvetleaf

Ragweed, common Ambrosia artemisütelia

Abutilon theophrasti

PERENNIAL GRASSES

Bermudagrass Cynodon daciylan

2 winfals zz

Guineagrass

Sporobolus pairetii

oumeagrass Panicum maximum Vaseygrass Pasoslum urvillei

lohnsongrass

Sorghum hatepense

<u>PERENNIAL BROADLEAVES</u>

Doghana, nemp

Nightshade, silverleaf

Apocynum cannabinum

Solanum elaeagnifolium

Ascelepias syriaca

Thistle, Canada Cirsium arvense

WEEDS CONTROLLED

This herbicide controls many annual and perennial grasses and broadleal weeds.

ANNUAL WEEDS

- Apply to actively growing grass and broadleaf weeds.
- Allow at least 3 days after treatment before tiltage.
- For maximum agronomic benefit, apply when weeds are 6 inches or less in height.
- To prevent seed production, applications should be made prior to seedhead formation.
- This product does not provide residual control; therefore, delay application until maximum weed emergence. Repeat treatments may be necessary to control later germinating

LOW-VOLUME BROADCAST APPLICATION (LOW-RATE TECHNOLOGY)

When applied as directed under the conditions described, this product will control the weeds listed below when:

- Water carrier volumes of 3 to 10 gallons per acre for ground applications and 3 to 5 gallons per acre for aerial applications are recommended. (See the "AERIAL APPLICA-TION" section of this label for approved sites.)
- 2. A nonionic surfactant is added at 0.5 to 1 percent by total spray volume. Use 0.5 percent surfactant concentration when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration for those surfactants containing less than 70 percent active ingredient.

NOTE

- The addition of 2 percent dry ammonium suifate by weight or 17 pounds per 100 gallons of water may increase the performance of this product on annual weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the "MDUNG, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.
- On not tank-mix with soil residual herbicides when using these rates unless otherwise specified.
- For weeds that have been mowed, grazed or cut, allow regrowth to occur prior to treatment.
- Refer to the "TANK MIXTURES" portion of this section for control of additional broadleaf weeds.

WEED SPECIES	MAXIMUM HEIGHT/ LENGTH	RATE PER ACRE* (Fluid Dunces)
Fortail Setaria spp.	12	8 tz.
Barnyardgrass Echinochloa crus-galli	6" (0 to 4" (4 to 6"	12 oz. 16 oz. ¹) 24 oz. ¹)
Bluegrass, annual Poa annua		
Brome, downy** Bromus tectorum		
Mustard, blus Chorispora tenella		
Mustard, Lansy Descurainia pinnata		
Mustard, tumble Sisymbrium altissimum		
Mustard, wild Sinapis arvensis		
Spurry, umbreila Holusteum umbeilarum		

Barley Hordeum vulgare Rye Secale cereale Sandbur, field Cenchius spp. Shattercane Sorghum bicolor Stinkgrass Eragiostis cilianensis	12*	
Wheat Inticum aestivum	18"	
Morningglery Ipomoea spp. Sicklepod Cassia objusilaha	2*	16 az.
Bluegrass, bulbous Poa bulbosa Cheat Bromus secalinus Chickweed, common Stellana media Chickweed, mouseear	6	·

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WEED SPECIES	MAXIMUM KESGHT/ LEHGTH	HATE PER ACRE* (Fluid Ounces)
Com Lea mays	Б"	16 oz.
Goatgrass, jointed Aegilops cylindrica		
Groundset, common Senecio vulgaris		
Henbit Lamium amplexicaule		
Horseweed/Marestail Conyra canadensis		
Lambsquarters, common Chenopodium album		
Pennycress, field Fanweed Thiaspi arvense		
Rocket, Landon Sisymbrium iria		
Ryegrass, Italian Lolium multiflorum		
Shephardspurse Capsella bursa-pastoris		

Spurge, agnual Euphorbia spp,		}
Buttercup Ranunculus spp.	12"	16 az.
Cocklebur Xanthium strumanum		
Crabgrass Digitaria spp.		
Dwartdandelion Krigia cespuosa		
Falseflax, smallseed Camelina microcarpa		ĺ
Fortail, Carolina Alopecurus carolinianus		
Johnsongrass, seedling Sorghum halepense		1
Gats, wild Avena latua		.
Panicum, fail Panicum dichetemillorum		}
Panicum, Texas Panicum texanum		}
Pigmeed, redroot Amaranthus retrollezus	}	}
Pigweed, smooth Amaranthus hybridus	}	

MAXUMUM HEIGHT/ LENGTH	RATE PER ACRE* (Fluid Ounces
12-	16 02.
3 to 4"	24 oz.
4-	
7 to 12"	
4-	32 oz.
6*	
12-	
	HEIGHT/ LENGTH 12 ⁻ 3 to 4 ⁻ 4 ⁻ 7 to 12 ⁻ 4 ⁻

Allie and the second se		
Goosegrass Eleusine indica	12	32 DZ.
Primrose, cutleaf evening Denothera laciniate		 .
Pusley, Florida Richardia scabra		
Sicklepod Cassia obtusitolia	5 to 12-	
Spanishneedles Bidens bipinnata		}
Filaree Erodium spp.	12-	43 oz.
Sprangietop Leptochioa spp.		
		- (

*Use these rates to control barnyardgrass in Alabama, Arkansas, Mississippi, Missouri, Louisiana and Taxas for preplant treatments.

^{*}for those rates less than 32 fluid ounces per acre, this product at rates up to 32 fluid ounces per acre may be used where heavy weed densibes exist.

^{**} For control in no-till systems, use 16 fluid ounces per acre,

TANK MIXTURES

Roundup plus BANVEL plus NONIONIC SURFACTANT

Roundup plus 2,4-D **PIUS NONIONIC SURFACTANT**

DO NOT APPLY BANVEL OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA

These tank mixtures are recommended for use in fallow and reduced tillage areas only. Follow use directions as given in the "LOW-VOLUME BROADCAST APPLICATION" section.

This product plus Banvel or 2.4-D will control the annual grasses and broadleaf weeds fisted for this product alone at the indicated heights (except 8 fluid ounces per acre applications), plus the following broadleaf weeds. For those weeds previously listed at 8 fluid ounces of this product alone per acre, use 12 fluid ounces in these tank mixtures.

NOTE: Refer to the specific product labels for crop rolation restrictions and cautionary statements of all products used in tank mixtures. Some crop injury may occur if Banvel is applied within 45 days of planning. The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed species.

Apply 12 to 16 fluid ounces of this product plus 0.25 lb. a.i. of Banvel or 0.5 pound a.i. of 2,4-0, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre to control

dense populations of the following annual broadleaf weeds when less than the height indicated:

Cocklebur (12")

Xanthium strumanum

Morningglory (67) Ipomoea spp.

Kochia* (6*)

Коспів усорала

Pigweed, redroot (12")

Lambsquarters (12")

Amaranmus retroflexus Pigweed, smooth (127)

Chenopodium album

Amaranthus hybridus

Lettuce, prickly (6")

Thistle, Russian (127)

Lactuca semola

Salsola kati

Marestail/Horseweed (6°)

Conyra canadensis

*Controlled with Barryel tank mixture only.

Apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2.4-0, plus 0.5 to 1 percent reprioric surfactant by total sovay volume per acre to control the following annual broadlead weeds when less than 6 inches in height.

Ragwerd, common

Amtuosia artemisülolia

Smartweed, Pennsylvania Polygonum pensylvanicum

Ragueed, giant

Helyetiaaf

Amtivosia Infida

Abutilon theophrasti

HIGH-VOLUME BROADCAST APPLICATIONS

When applied as directed under the conditions described, this product will control the weeds listed below when water carrier volumes are 10 to 40 gallons per acre for ground applications.

Apply I to 1.5 quarts of this product per acre plus 0.5 to 1 $\,$ percent nonionic surfactant by total spray volume. Use 1 quart per acre if weeds are less than 6 inches tall and 1.5 quarts per acre if weeds are over 6 inches tall, if weeds have been mowed, grazed, or cut, allow adequate time for new growth to reach recommended stages prior to treatment. These rates will also provide control of weeds tisted in the "LOW-VOLUME BROADCAST APPLICATION" section.

WEED SPECIES

Balsamapple* Momordica charantia

Panicum Panicum spp.

Bassia, fivehook Bassia hyssopilolia

Ragweed, common Ambrosia artemisiifolia

Brome Bromus spp. Ragweed, giant Ambrosia trilida

Fiddleneck Amsinckia spp.

Smartweed, Pennsylvania Polygonum pensylvanicum

Fleabane, hairy Conyza bonariensis

Sowihistle, annual

Fleabane

Sonchus cleraceus

Erigeron sop.

Sunflower Hefianthus annuus

Kochia

Thistie, Russian

Kochia scoparia

Salsola kali

Lettuce, prickly Lacruca sernola

Velyetleaf Abutikon theophrasti

*Apply with hand-held equipment only.

PERENNIAL WEEDS

Apply this product as follows to control or destroy most peren-

NOTE: If weeds have been mowed or tilled, do not treat until plants have resumed active growth and have reached the recommended stages.

Repeal treatments may be necessary to control weeds regenerating from underground parts or seed. Repeat treatments must be made prior to crop emergence.

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product on perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the "Mix-ING. ADDITIVES and APPLICATION INSTRUCTIONS' section of

When applied as recommended under the conditions described, this product WILL CONTROL the following PEREN-

Allalla

Benigrass

Medicago sativa Alligatorweed*

Agrasas sop. germodagrası Cymodon daciylon

Alternanthera philozeroides Artichoka, Jerusalem

Bermudagrass, water (Anotorass)

Helianthus tuberosus Bahiagrass Paspalum notatum

Paspalum disuchum Bindweed, field Complyulus arrensis

Bluegrass. Kentucky Poa spp.

Blueweed, Texas Helianthus ciliaris

Brackenfern Pteridium aquilinum

Bromegrass, smooth
Bromus inermis
Bursage, woollyleaf

Franseria tomentosa Canarygrass, reed

Phalaris arundinacea

Cattail *lypha spp.*

Cloriet, red Trifolium pratense

Clover, white Trifolium repens

Cogongrass
Imperata cylindrica

Dallisgrass Paspalum dilatatum

Dandelion Tataxacum officinale

Dock, curty Rumex crispus Milloweed
Asclepias spp.

Muhly, wirestem Muhlenbergia frondonsa

Mullein, common Verbascom thansus

Napiergrass

Pennisetum purpureum

Nightshade, silverteat Solanum elaeasmfolium

Nutsedge, purple, yellow Cyperus rotundus

Cyperus esculentus Orchardgrass Dactytis glomerata

Pampasgrass Cortaderia jubata

Paragrass Brachiaria mutica

Phragmites*
Phragmites spp.

Quackgrass Agropyron repens

Redvine*

Brannichia ovata

Reed, giam

Arundo donas

Oogbane, hemp

Apocynum cannabinum Fescues

Festuca spp. Fescue, tall

Festuca arundinacea Guineagrass

Pancium maximum Horsenettle

Solanum carolinense Horseradish

Annoracia rusticana Johnsongrass

Sorghum halepense

Kikmyugrass Pennisetum clandestinum

Knapweed Centaurea repens

Lantana Lantana camara

*Partial Control

This product is not registered in California for use on water bermudagrass.

See "DIRECTIONS FOR USE" and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for labeled uses and specific application visituctions.

Ryegrass, perennia) Lolium perenne

Smartweed, swamp Polygonum coccineum

Sporge, leafy* Euphorbia esula

Sweet potato, wild*

Ipomoea pandurata

Thistle, Canada Cirsium arvense

Timothy Phieum praterio

Torpedograss* Panicum repens

încorpalereeper* Campsis radicans

Vaseyerass Paspalum urvillei

Witeaturass western Agroppion smithii

Alfaffa—Apply 1 quart of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make application after the last hay cutting in the fall. Allow alfaffs to regrow to a height of 6 to 8 inches or more prior to treatment. Applications should be tollowed with deep tillage at least 7 days after treatment, but before soil freeze-up.

Ailigatorweed—Apply 4 quarts of this product per acre or apply a 1.5 percent solution with hand-held equipment to provide partial control. Apply when most of the plants are in bloom. Repeat applications will be required to maintain such control.

Bentgrass—For suppression in grass seed production areas. For ground applications only, apply 1.5 quarts of this product glus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure entire crown area has resumed growth orior to a fall application. Bentgrass should be actively growing and have at least 3 inches of growth. Tillage prior to treatment should be avoided. Tillage 7 to 10 days after application is recommended for best results. Failure to use tillage after treatment may result in unacceptable control.

Bermudagrass—For control, apply 5 quarts of this product per acre, for partial control, apply 3 quarts per acre, freat when bermudagrass is actively growing and seedheads are present. Retreatment may be necessary to maintain control. Allow 7 or more days after application before tillage.

Bermudagrass, water (knotgrass)—Apply 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Apply when

water bemudagrass is actively growing and 12 to 18 inches in length. Allow 7 or more days before tilling, flushing or flooding the field.

Fall applications only—Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by Intal spray volume in 5 to 10 gallons of water per acre. Fallow fields should be tilled prior to application, Apply prior to frost on water bermudagass Inal is actively growing and 12 to 18 inches in length. Allow 7 or more days before tillage.

Bindweed, field—For control, apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts east of the Mississippi River and 3 to 4 quarts east of the Mississippi River, Apply when the weeds are actively growing and are at or beyond full bloom. On not treat when weed is under drought stress as good soil moisture is necessary for active growth. For best results, apply in fall summer or fall, Fall treatments must be applied before a killing frost. Allow 7 or more days after application before titlage.

Also for control, apply 2 quarts of this product plus 0.5 pound a.i. of Banvel in 10 to 20 gallons of water per acre. At these rates, apply using ground application only.

The following tank mixtures with 2,4-0 may be applied using aerial application equipment (except in California) in fallow and reduced titlage systems only.

For suppression on irrigated agricultural land, apply 1 to 2 quarts of this product plus 1 pound at, of 2,4-D in 10 to 20 gallons of water per acre with ground equipment only.

Applications should be made following harvest or in fall fallow.

ground when the bindweed is actively growing and the majority of runners are 12 inches or more in length. The use of at least one irrigation will promote active bindweed growth.

For suppression, apply 16 fluid ounces of this product dus 0.5 pound a.i. of 2,4-0 plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aenal applications. Applications should be detayed until maximum emergence has occurred and when vines are between 6 to 18 inches in fength.

In California only, apply 1 to 5 quarts of this product per acre. Actual rate needed for suppression or control will vary within this range depending on local conditions.

For suppression on irrigated land where annual tillage is derformed, apply 1 quart of this product plus 0.5 to 1 percent nonioric surfactant by total spray volume in 3 to 10 gaffons of water per acre. Apply to actively growing pindweed that has reached a length of 12 incoses or greater. Allow maximum weed emergence and runner growth. Do not treat when weeds are under drought stress as good soil moisture is necessary for active growth. Allow 3 or more days after application before bilage.

Bluegrass, Kentucky / Bromegrass, smooth / Orchardgrass—Apply 2 quarts of this product in 10 to 40 gallons of water per acre when the grasses are actively growing and most plants have reached boot-to-early seedhead stage of development. For partial control in pasture or hay crop renovation, apply 1 to 1.5 quarts of this product plus 0.5 to 1 per-

cent nonitoric surfactant by total spray volume in 3 to 10 galtons of water per acre. Apply to actively growing plants when most have reached 4 to 12 inches in height. Allow 7 or more days after application before biliage.

Orchardgrass (sods going to no-till corn)—Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gailons of water per acre. Apply to orchardgrass that is a minimum of 12 inches tall for spring applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting A sequential application of atrazine will be necessary for optimum results.

Blueweed, Texas—Apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts per acre east of the Mississippi River, Apply when weed is actively growing and is at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. New feat development indicates active growth. For best results, apply in tate summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Brackentern—Apply 3 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with handheld equipment. Apply to fully expanded fronds which are at least 18 inches long.

Bursage, woollylea!—For control, apply 2 quarts of this product plus 1 pint of Banvel per acre, for partial control, apply 1 quart of this product plus 1 pint of Banvel per

acre. Add 0.5 to 1 percent nonionic surfactant by total soray volume and apply in 3 to 20 gallons of water per acre. Apply when plants are producing new active growth which has been initiated by moisture for at least 2 weeks and when plants are at or beyond flowering.

Canarygrass, reed / Timothy / Wheatgrass, western— Apply 2 to 3 quarts of this product per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth. Allow 7 or more days after application before billage.

Cogongrass—Apply 3 to 5 quarts of this product plus 0.5 to 1 percent nonionic surfactant in 10 to 40 gallons of water per acre. Apply when Cogongrass is at least 18 inches tall and actively growing in late summer or fall. Allow 7 or more days after application before tillage or mowing. Due to uneven stages of growth and the dense nature of vegetation preventing good spray coverage, repeat treatments may be necessary to maintain control.

Dandelion / Dock, curly—Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 15 fluid ounces of this product plus 0.5 pound a.i. 2,4-0 plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre.

Dogbane, hemp—Apply 4 quarts of this product per acre.

Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mahure stage

prior to treatment. For best results, apply in fate summer or fall. Allow 7 or more days after application before tillage.

For suppression, apply 16 thid ounces of this product plus 0.5 pound a.i. of 2.4-0 plus 0.5 to 1 percent nonionic surfactant by total soxay volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Delay applications until maximum emeragence of dogoane has occurred.

Fescue, tail—Apply 3 quarts of this product in 10 to 40 gallons of water per acre to actively growing plants when most have reached boot-to-early seedhead stage of development.

Fall applications only—Apply I quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to fescue in the fall when actively growing and plants have 6 to 12 inches of new growth. Allow 7 or more days after application before tillage. A sequential application of 1 pint per acre of this product plus nonionic surfactant with improve long-term control and control specifies.

Guineagrass—Apply 3 quarts of this product per acre or use a 1 percent solution with hand-held equipment. Apply to actively growing guineagrass when most has reached at least the 7-leaf stage of growth. Ensure thorough coverage when using hand-held equipment. Allow 7 or more days after application before tillage.

Johnsongrass / Ryégrass, perennial—Apply 1 to 3 quarts of this product per acre. In annual cropping systems apply 1 to 2 quarts of this product per acre. Apply 1 quart of this product

plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre. In noncrop, or areas where annual tillage (no-till) is not performed, apply 2 to 3 quarts of this product in 10 to 40 gallons of water per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth or in the lall prior to frost. Allow 7 or more days after application before tillage. Do not tank-mix with residual herbicides when using the 1 quart per acre rate.

For burndown of Johnsongrass, apply 1 pint per acre plus 0.5 to 1 percent nonionic surfactant in 3 to 10 gations of water per acre before the plants reach a height of 12 inches. For this use, allow at least 3 days after treatment before tillage.

Spot treatment (partial control or suppression)—Apply a 1 percent solution of this product plus 0.5 to 1 percent nonionic surfactant by total suray volume when Johnsongrass is 12 to 18 inches in height. Coverage should be uniform and complete

Kikuyugrass—Apply 2 to 3 quarts of this product per acre. Spray when most kikuyugrass is at least 8 inches in height (3 or 4-leaf stage of growth) and actively growing. Allow 3 or more days after application before tillage.

Knapweed / Horseradish—Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or moving, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or tall. Allow 7 or more days after application before billage.

Lantana—Apply this product as a 1 to 1.25 percent solution using hand-held equipment only. Apply to actively growing fantana at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth. Allow 7 or more days after application before billage.

Milkweed, common—Apply 3 quarts of this product per acre. Apply when actively growing and most of the milkweed has reached the late bud to flower stage of growth, Following small grain harvest or moving, allow milkweed to regrow to a mature stage prior to treatment. Allow 7 or more days after application before tillage.

Muhly, wirestem—Apply 1 to 2 quarts of this product per acre. Use 1 quart of this product plus 0.5 to 1 percent non-ionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre or in pasture, sod, or noncrop areas. Spray when the wirestem muhly is 8 inches or more in height and actively growing. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before fillage. This product will not provide residual control of wirestem muhly from seeds which germinate after application of this product. Do not tank mix with residual herbicides when using the 1 quart per acre rate.

Nightshade, silverleaf—For control, apply 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Applications should be made when all least 60 percent of the plants have

berries. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth.

Nutsedge: purple, yellow—Apply 3 quarts of this product per acre as a broadcast spray, or apply a 1 to 2 percent solution from hand-held equipment to control existing nutsedge plants and immature nutlets attached to treated plants. The when plants are in flower or when new nutlets can be found at thizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Repeat treatments will be required for long-term control of ungerminated nutlers.

Sequential applications of 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total soray volume in 3 to 10 gallons of water per agre will provide control. Make applications when a majority of the plants are in the 3 to 5-teat stage (less than 6 inches tall). Repeat this application and concessary, when newly emerging plants reach the 3 to 5-teat stage. Subsequent applications will be necessary for long-term control.

For suppression to partial control of existing plants, apply 1 pint to 2 quarts of this product per acre, plus 0.5 to 1 percent nonionic surfactant in 3 to 40 gallons of water per acre. Treat when plants have 3 to 5 leaves and most are less than 6 inches tall. Repeat treatments will be required to control subsequent emerging plants or regrowth of existing plants. Wait 7 days after treatment before tillage or mowing.

Pampasgrass—Apoly this product as a 1.5 to 2 percent solution using hand-neld equipment. Apoly to plants that are actively growing at or beyond the boot stage of growth, indrough covarage is necessary for best control.

Phragmites—For partial control of phragmites in Florida and the counties of other states bordering the Gulf of Mexico, apply 5 quarts per acre as a proadcast spray or apply a 2 percent solution from hand-held equipment. In other areas of the U.S., apply 3 quarts per acre as a broadcast spray or apply a 1 percent solution from hand-held equipment for partial control. For best results, treat during late summer or fall months or when plants are actively growing and in full bloom. Treatment before or after this stage may lead to reduced control. Due to the dense nature or the vegetation, which may prevent good spray coverage or uneven stages of growth, repeat treatments may be necessary to maintain control. Visual control symptoms will be slow to develop

Obackgrass—In Annual Cropping Systems, or in Pastures and Sods Followed by Deep Tillage: Apply 1 to 2 quarts of this product per acre. For the 1 quart rate, apply 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. For the 2 quart rate, apply in 10 to 40 gallons of water per acre. For the 2 quart rate, apply in 10 to 40 gallons of water per acre. Do not tank mix with residual herbicides when using the 1 quart rate. Spray when quackgrass is 6 to 8 inches in height and actively growing. Do not till between harvest and tall applications or in tall or spring prior to spring application. Allow 3 or more days after application before tiligge in pastures or sods, for best results use a mold-board plow.

Quackgrass—Pasture or Sod or Other Noncrop Areas Where Deep Tillage is Not Planned Following Application: Apply 2 to 3 quarts in 10 to 40 gallons of water per acre. Spray when the quackgrass is greater than 8 inches tall and actively growing. Do not till between harvest and fall application or in fall or spring prior to spring application. Allow 3 or more days after application before Ollage.

Redvine—For suppression, apply 24 fluid ounces of this product per acre at each of two applications 7 to 14 days abart or a single application of 2 quarts per acre. Apply recommended rates in 5 to 10 gallons of water per acre plus 0.5 to 1 percent nonionic surfactant by total volume. Apply to actively growing plants in late September or early October, which are at least 18 inches tall and have been growing 45 to 60 days since the last fillage operation. Make applications at least 1 week before a villing frost.

Reed, giant—For control of giant reed, apply a 2 percent solution of this groduct when plants are actively growing. Best results are obtained when applications are made in late summer to fall.

Smartweed, swamp—Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fluid ounces of this product plus 0.5 pound active lagredient of 2.4-0 plus 0.5 to 1 percent non-tionic surfactant by total volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before littage.

Spurge, leafy—For suppression, apply 16 fluid ounces of this product plus 0.5 pound active ingredient 2,4-0 plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gaffons of water per acre in the late summer or fall. Apply when plants are actively growing. If moving has occurred prior to treatment, apply when most of the plants are 12 inches tail. Allow 7 or more days after application before tillage.

Sweet Potato, wild—Apply this product as a 2 percent solution using hand-held equipment. Apply to actively growing weeds that are at or beyond the bloom stage of growth. Repeat applications will be required. Allow the plant to reach the recommended stage of growth before retreatment. Allow 7 or more days before billage.

Thistle, Canada—Apply 2 to 3 quarts of this product per acre. Apply to actively growing thistles when most are at or beyond the bud stage of growth. After harvest, mowing or bitage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to the application of this product. Fall treatments must be applied before a killing frost. Allow 3 or more days after application before tillage.

For suppression of Canada thistle, apply 1 quart per acre of this product, or 1 pint of this product plus 0.5 pound a.i. 2,4-0 per acre, plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall after harvest, moving or bilage. Allow rosette regrowth to a minimum of 6 inches in diameter before treating. Applications can be made as long as leaves are still

green and plants are actively growing at the time of application. Allow 3 or more days after application before offage.

Torpedograss—Apply 4 to 5 quarts of this product per acre to provide partial control of torpedograss. Apply to actively growing torpedograss when most plants are at or beyond the seedhead stage of growth. Repeat applications will be required to maintain control. Fall treatments must be applied before frost. Allow 7 or more days after application before tillage.

Trumpetereeper-For control, apply 2 quarts of this product per acre in 5 to 10 gallons of water per acre. Apply to actively growing plants in late September or October, which are at least 18 inches tall and have been growing 45 to 60 days since the last tiltage operation, Make applications at least 1 week before a killing frost.

Other perennials fisted on this label—Apply 3 to 5 quarts of this product per acce. Apply when actively growing and most have reached early head or early bud stage of growth. Allow 7 or more days after application before tillage.

WOODY BRUSH AND TREES

When applied as recommended under the conditions described, this product CONTROLS or PARTIALLY CONTROLS the following woody brush, plants and trees:

Alnus spp.

Ash* Frazinus spp. Cherry: Bitter.

Prunus emarginata

Black

Prunu**s** serotina

Aspen, quaking

Papulus tremulaides

Bearmal (Bearclover) Chamaebatia foliolosa

Betula spp.

Blackberry

Rubus spp.

Broom:

Cytisus

monspessulanus

Scotch

Cycisus scopenius

Buckwheat, California* Eriogonum fasciculatum

Cascara*

Rhamnus purshiana Catsclaw*

Acacia gieggi

Ceanothus* Ceanothus sop.

Chamise Adenostoma fasciculatum

Prunus pensylvenica

Cayote brush

Baccharis consanguinea

是在1.00mm的,1.00mm的

Creeper, Virginia*

Partnenocissus

quinquelatia

Dewberry

Rubus trivialis

Liderberry

Sambucus spp.

Elm* Ulmus spp.

Eucatyptus

Eucalyptus spp.

Hasardia* Haplopappus squamosus

Hawthorn

Crataegus sop.

Kazel

Corylus spp.

Нолеузисків

Lonicera spp.

Pueraria lobata

53

100

Russian-olive*** Elaeagnus angustifolia

Arbutus menziesii

Sage, black - Sama mellifera

Magzanita Arctostaphylos spp. Sagebrush, California Artemisia californica

Maple:

Salmonberry Rubus spectabilis

Red** Acet rubrum Sugar

Sassafras

Acer saccharum Vine*

Sassafras aibidum

Acet circunatum

Sourwood

Sumac:

Oxydendrum arboreum

Monkey Flower* Mimulus gultatus

Poison* Rhus vernix

Dak: Black*

\$mooth* Rhus glabra Winged*

Quercus velutina Northern Pin Quercus palustris

Rhus copallina

Post

Sweetgum

Quercus stellata Red

Liquidambar sıyrəcifluə *mstbrow2

Quercus rubra Southern Red Overcus falcata White*

Polystichum munitum Tallowtree, Chinese

Quercus alba

Sapium sebiterum

Tan Oak

Persimmon* Diospyros spp.

Lithocarpus densiflorus

Poison by Rhus radicans

Thimbleberry

Poison Qak

Rubus parvillorus Tobacco, tree*

Rhus taucodendron

Nicotiana glauca

Poplar, yellow* Linodendian tulipilera

Trumpetoreeper Campsis radicans

Willow Safix spp

Raspberry Rubus spp.

Rose, multiflora Rosa multiflora

*Partial control

**See below for control or partial control instructions.

*** This product is not registered in California for use on Russian-olive.

NOTE: If brush has been mowed or tilled or trees have been cut, do not treat until regrumth has reached the recommended stages of growth.

Apply this product when plants are actively growing and unless otherwise directed, after full leaf expansion. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when application is made in the spring to early summer when brush species are at high moisture content and are flowering.

Ensure thorough coverage when using hand-held equipment. Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, moving or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undestrable deciduous species are acceptable provided on major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

See "DIRECTIONS FOR USE", and "MOUNG, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for labeled uses and specific application instructions.

Apply this product as follows to control or partially control the following woody brush and trees.

Adder / Dewberry / Koneysockle / Post Oak / Raspberry— For control, appty 3 to 4 quarts per acre of this product as a broadcast spray or as a 1 to 1.5 percent solution with handheld equipment.

Aspen, quaking / Cherry: bitter, black, pin / Hawthorn / Oak, southern red / Sweetgum / Trumpetereeper—For control, apply 2 to 3 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment.

Birch / Elderberry / Hazel / Salmonberry / Thimbleberry for control, apply 2 quants per acre of this product as a breadcast spray or as a 1 percent solution with hand-held equipment.

Blackberry—For control, apply 3 to 4 quarts per acre of this product as a broadcast soray, or 1 to 1.5 percent solution with hand-held equipment. Make application after plants have reached full leaf maturity. Best results are obtained when applications are made in late summer or fall. After berries have set or dropped in late falt, blackberry can be controlled by applying a 3/4 percent solution of this product plus 0,5 to 1 percent nonionic surfactant by total spray volume with handheld equipment. For control of blackberries after leaf drop and until killing frost or as long as stems are green, apply 3 to 4 quarts of this product in 10 to 40 gallons of water per acre.

Broom: French, Scotch—for control, apply a $1.5\ \text{to 2}$ percent solution with hand-held equipment.

Buchwheat, California / Hasardia / Monkey Flower / Tobacco, tree—For partial control of these species, apply a 1 to 2 percent solution of this product as a fobar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

Catsclaw—For partial control, apply as a 1 to 1.5 percent solution with hand-held equipment.

Coyote Brosh—For control, apply a 1.5 to 2 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.

Eucatyptus — For control of eucatyptus resprovts, apply a 2 percent solution of this product with hand-held equipment when resprouts are 6 to 12 feet tall. Ensure complete coverage. Apply when plants are growing actively. Avoid application to drought-stressed plants.

Kudzu—For control, apply 4 quarts of this product per acre as a broadcast soray or as a 2 percent solution with handheld equipment. Repeat applications will be required to maintain control.

Madrone resprouts—For suppression or partial control, apply a 2 percent solution of this product to respond than 3 to 6 feet fall. Best results are obtained with social/early summer treatments.

Maple, red—for control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new leaves are tally developed. For partial control, apply 2 to 4 quarts of this product per acre as a broadcast spray.

Maple, sugar / Oak, northern pin / Oak, red—for control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.

Poison by / Poison Oak—For control, apply 4 to 5 quants of this product per acre as a broadcast spray or as a 2 cercent solution with nand-held equipment. Repeat applications may be required to maintain control. Fall treatments must be applied before leaves tops preen color.

Rose, multiflora—For control, apply 2 quants of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment. Treatments should be made prior to leaf deterioration by leaf-feeding insects.

Sage, black / Sagebrush, California / Chamise / Tathowtree, Chinese—For control of these species, apply a 1 percent solution of this product as a letter spray with hand-held edupment. Indicage coverage of foliage is necessary for best results.

fan oak resprouts—for suppression or partial control, apply a 2 percent softwon of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with fall applications

Willow—For control, apply 3 quarts of this product per acre as a proadcast soray or as a 1 percent solution with handheld equipment.

Other Woody Brush and Trees listed on this label—For partial control, apply 2 to 4 quarts of this product per acre as a productast soray or as a 1 to 2 percent solution with handheld equipment.

NONCROP USES

See "GENERAL INFORMATION" and "MOUNG, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for essential product performance information and the following "NON-CROP" sections for specific recommended uses.

EXTREME CARE MUST BE DIERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS, EXPOSED MON-WOODY ROOTS OR FRUIT OF CROPS, DESTRABLE TURFGRASSES, TREES, SHRUBS OR OTHER DESTRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seeds.

This product does not pravide residual weed control. For subsequent weed control, follow a label-approved herbicide program.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

INDUSTRIAL, RECREATIONAL AND PUBLIC AREAS

When applied as directed for "NONCROP USES", under conditions described, this product controls annual and perennial weeds listed on this label growing in areas such as airports, ditch banks, dry dictnes, dry canals, fencerows, golf courses, highways, industrial plant sites, humber yards, parking areas, parks, petroteum tank izyms and pumping installations, railroads, madsides, schools, storage areas, utility substations, other public areas and similar industrial or noncrop areas.

For specific rates of application and instructions for control of various annual and perennial weeds and woody brush and trees, see the "WEEDS CONTROLLED" section of this label.

This product may be applied with recirculating sprayers, shielded applicators, or wiper applicators in any noncrop site specified on this label. See the Selective Equipment part of TAPPUCATION EQUIPMENT and TECHNIQUEST section of this label for information on proper use and calibration of this equipment.

TANK MIXTURES FOR INDUSTRIAL SITES

Roundup plus OUST*

Use on industrial sites including airports, industrial plants, fumberyards, petroleum tank farms, pumping stations, pipelines, railroads, roadsides, storage areas or other similar sites where bare ground is desired.

When applied as directed for "NONCROP USES" under the conditions described, this product plus Oust provides control of annual weeds listed in the "WEEDS CONTROLLED" section of the label for this product and Oust, and control or partial control of the perennial weeds listed below.

Apply 1 to 2 quarts of this product with 2 to 4 gunces of Oust in 10 to 40 gallons of spray solution per acre as a broadcast spray to actively growing weeds.

When applied by air, use the recommended rates in 5 to 15 gallons of spray solution per acre.

This product plus Dust tank mixtures may not be applied by air in California.

For control of annual weeds, use the lower rates of treese products. For control of the listed perennial weeds, use the higher rates of both products. For partial control, use the lower rates.

Bahiagrass Paspalum notatum Johnsongrass**
Sorghum halepense

Bermudagrass*
Cynodon dactylon

Poorjoe**
Diodia teres

Broomsedge Andropogon virginicus Quackgrass Agropyton repens

Dock, curty Rumes crispus Trumpetcreeper*
Campsis radicans

Doglenne) Eupatonum capillilorium

Vaseygrass Paspalum unvillei

Fescue, tall Festuca arundinacea

Vervain, blue Verbena hastata

*Suppression at the higher rates only.

**Control at the lower rates.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

TANK MIXTURES NONCROP SITES

When applied as a tank mixture, this product provides control of the emerged annual weeds and partial control of the emerged perennial weeds listed in this label. When applied as a tank mixture, the following residual herbicides will provide preemergence control of the weeds listed in the individual product labels.

Roundap plus DIURON

Roundup plus KROVAR" [

Roundup plus KROVAR II

Roundup plus RONSTAR™ 50WP

Roundup plus SIMAZINE, PRINCEP™ CALIBER™ 90

Roundup plus SIMAZINE 4L

Roundup plus SIMAZINE 80W

Roundup plus SURFLAN™ 75W

Roundup plus SURFLAN AS

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 m 1 percent by volume of spray solution. See the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label before preparing these tank mixtures.

Read and carefully observe the label claims, cautionary statements, recommended use rates and all other information on the labels of all products used in these tank mixtures. Use according to the most restrictive tabel directions for each product in the mixture.

CONTROL OF EMERGED WEEDS

Annual Weeds—Apply 1 quartiper acre of this product in these tank mixtures when weeds are less than 5 inches tall and i.5 quarts per acre when weeds are more than 5 inches tall.

Personnial Weeds—For partial control of personnial weeds using these tank mixtures, apply 2 to 5 quarts per acre of this product. Follow the recommendations in the "WEEDS CONTROLLED" section of this label for stage of growth and rate of application for specific personnial weeds.

PREEMERGENCE WEED CONTROL

For preemergence weed control, refer to the individual product labels for specific noncrop sites, rates, carrier volumes and crecautionary statements.

 $R_{\rm c}$) only the quantity of spray solution which can be used during the same day. Do not allow these tank mixtures to stand evernight as this may result in reduced weed control.

APPLY THESE TANK MIXTURES THROUGH CONVENTIONAL BROADCAST EQUIPMENT ONLY

FARMSTEAD WEED CONTROL

When applied as directed for "NONCROP USES", under conditions described, this product controls undestrable vegetation listed on this label around farmstead building foundations, along and in tences, shelterbelts and for general nonselective farmstead weed control:

For specific vates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

FARM DITCHES

This product will suppress perennial grasses along farm ditches. Apply this product at a rate of 6 to 8 fluid ounces geracre. Use 8 fluid ounces per acre when treating tall (coarse) fescue, fine fescue, orchardgrass or quackgrass covers. For best suppression of these spacies, add amonium sulfate at a rate of 1.7 bounds per 10 galons of spray solution. Use 6 fluid bunces per acre without ammonium sulfate when treating Rentucky bluegrass.

Apply treatments in 10 to 20 gallons of soray solution per acre to actively growing perennial grass covers. For best spray distribution and coverage, use flat fain nozzles.

Add a nonfonic surfactant at a rate of 0.5 percent of the saray solution.

Where broadleal weed control or suppression is desired, tank this product with an appropriate, labeled broadleaf weed herbicide, $\frac{1}{2}$

CONSERVATION RESERVE PROGRAM (CRP ACRES)

This product can be used to control undestrable vagetation when rotating out of CRP acres or to suppress competitive growth and seed production of undestrable vegetation in CRP acres.

For specific rates of application for various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

CRP applications may be made with wiper applicators or conventional soray equipment.

for selective applications with broadcast spray equipment, apply 12 to 16 owners per acre of this product in early soring before desirable CRP grasses, such as crested and tall wheatgrass, break dommancy and initiate green growth. Late fall applications can be made after desirable perennial grasses have reached dommancy. Some stunting of CRP perennial grasses will occur if applications are made when plants are not dommant.

HABITAT MANAGEMENT

This product is recommended for the restoration and/or maintenance of native habitats and in wildlife management areas. Apply as recommended in the "NONCROP USES" section of this label.

Habitat Restoration and Maintenance—When applied as directed, exotic and other undesirable vegetation may be controlled in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broadspectrum vegetation control requirements in habitat management areas. Spot treatments can be made to selectively remove unwanted plants for habitat maintenance and enhancement. For spot treatments, care should be exercised to keep spray off of desirable plants.

Wildlife Food Plots—This product may be used as a site preparation treatment prior to planting wildlife food plots. Any wildlife food species may be planted after applying this products.

uct, or native species may be allowed to repopulate the area. It stillage is needed to prepare a seedbed, wait 7 days after applying this product before tilling.

ORNAMENTALS AND CHRISTMAS TREES

THIS PRODUCT IS NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN ORNAMENTALS AND CHRISTMAS TREES.

NOTE: the sinable plants may be protected from the spray Solution by using shields or coverings made of caroboard or other impermeable material.

When applied as instructed for the conditions described for "NONCROP USES", this product controls undesirable vegetation listed on this label prior to planting, within and around greenhouses and shadehouses, and as a postdirected spray around established ornamentals and Christmas trees.

for specific rates of application and instructions for control of various annual and perennial weeds, see the "Weeds Controlled" section of this label.

Where regeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year.

Site Preparation—Following preplant applications of this product, any ornamental or Christmas tree species may be planted. Precautions should be taken to protect nuntarget plants during site preparation applications.

Greenhouse/Shadehouse Use—This product may be used to control weeds listed on this label which are growing in greenhouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

Postdirected Spray—Use as a postdirected spray around established woody ornamental species or Christmas trees such as those listed below. Care must be exercised to avoid contact of spray, drift or mist with foliage of or green bank of established ornamental species.

Arhorvitae Ituja spp. Lilac

00.

Syringa spp.

Azalea Rhododendron spp. Magnolia *Magnolia spp.*

Barwaod

Mapte

Burus spp. Crabapple Acer spp. Oak

Malus spp.

Quercus spp.

Evonymus

Privet

Еиопутиз грр.

Ligustrum spp.

Pine

Abies spp. Pseudotsuga spp. Pinus spp.

foioba

Spruce Picea spp.

rojona

Yew

Hollies

Taxus sop.

tter spp.

CUT STUMP TREATMENTS

Woody vegetation may be controlled by treating freshly out stumps of trees and resprouts with this product. Apply this product using suitable equipment to ensure coverage of the entire cambium. Our vegetation close to the soil surface. Apply a 50 to 100 percent solution of this product to the freshly out surface immediately after cutting. Delays in application presult in reduced performance. For best results, applications should be made during periods of active growin and full leaf expansion.

When used according to directions for cut stump application, this product will CONTROL, PARTIALLY CONTROL or SUPPRESS many types of woody brush and tree species, some of which are listed below:

Alder

Saltcedar

Alnus soo.

lamansk spp.

Eucalyptus

Sweetgum

Eucatyptus sop.

Liquidambar styraciflua

Madrone

lan Qak Lithocarpus densiflorus

Arbutus menziesii

W:11a...

Cak

Willow

Overcus spp.

Salir spp.

Reed, giant Arundo donas

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INJECTION AND FRILL APPLICATIONS

Woody vegetation may be controlled by injection or frill application of this product. Apply this product using suitable equipment which must penetrate into the living tissue. Apply the equivalent of 1 ml of this product per each 2 to 3 inches of trunk diameter (DBH). This is best achieved by applying a 50 . to 100 percent concentration of this material either to a contimuous friil around the tree or as cuts evenly spaced around the tree below att branches. As tree diameter increases in size, better results are achieved by applying diluted material to a continuous trill or more closely spaced curtings. Avoid application techniques that allow runoff to occur from frith or cut areas in species that exude sap freely after frills or cutting. In species such as this, make frill or cut at an oblique angle so as to produce a cupping effect and use undiluted material. For pest results, application should be made during periods of active growth and ofter full leaf expansion.

This treatment WILL CONTROL the following woody species:

Đak

Sweetgum

Overcus spp.

Liquidambar styracillus

Poplar

Sycamore

Populus spp.

Platanus occidentalis

This treatment WILL SUPPRESS the following woody species:

Black gum

Hickory

Nyssa sylvatica

Carya sop.

Dogwood

Maple, red

Comus spp.

Acer rubrum

TURFGRASSES AND GRASSES FOR SEED PRODUCTION

PREPLANT AND RENOVATION

When applied as directed for "NONCROP USES", under conditions described, this product controls most existing vegetation prior to the planting or renovation of either turfgrasses or grass seed production areas.

For specific rates of application and instructions for central of various annual and perennial weeds, and woody brush and trees, see the "WEEDS CONTROLLED" section of this label.

For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application, for warm-season grasses, such as bermudagrass, summer or fall applications provide best control.

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT, Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days. after application to allow proper translocation into underground plant parts.

TUREGRASSES

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth listed in the "WEEDS CONTROLLED" section of this label.

Where existing vegetation is growing under moved furfigrass management, apply this product after omitting at least one regular moving to allow sufficient growth for gold interception of the spray.

Desirable terigrasses may be planted following the above procedures.

GRASSES FOR SEED PRODUCTION

Apply this product to actively growing weeds at the stages of growth recommended in the "WEEDS CONTROLLED" section of this label prior to dianting or renovation of test or forage grass areas grown for seed production.

DO NOT feed or graze treated areas within 3 weeks after application.

ANNUAL WEED CONTROL IN Dormant Bermudagrass and Bahiagrass Turf

When applied as directed for "NONCROP USES" under the conditions described, this product will provide control or suppression of many winter annual weeds and taff fescue for effective release of dormant bermudagnass and bahlagnass turf. Refer to the rate table for Roundup alone under the "RELEASE OF BERMUDAGNASS" and BAHLAGNASS" section of this label for recommended rates and volumes on the species to be suppressed or controlled. Treat only when turf is dormant and prior to spring greenup. Spot treatments or broadcast applications of this product in excess of 16 fluid ounces per acre may result in injury or delayed greenup in highly main-

tained terfgrass areas: i.e., got courses, lawns, etc. DO NOT APPLY TANK MIXTURES of this product plus Oust in highly maintained turfgrass areas.

RELEASE OF BERMUDAGRASS OR BAHIAGRASS

NOTE: Use only in areas where beimudagrass or bahlagrass are desirable ground covers and where some temporary injury or discoloration can be tolerated. Use tank mattures of this product plus Dust only on railroads, highways, whility plant sites, or other right-of-way areas.

When applied as directed for "NONCROP USES" under the conditions described, this product will provide control or suppression of many winter annual weeds and tall tescue for effective refease of dormant bermudagrass or bahiagrass. This product may be tabli-mited with Oust as recommended for residual control. Make applications to dormant bermudagrass or bahiagrass. Tank mitures of this product plus Oust may celay greenup. To avoid delays in greenup and miximize injury, do not add more than 1 punce per acre of Oust on bermudagrass or more than 0.5 dunce declare or bahiagrass, or treat when these grasses are in a semi-dormant condition.

For best results on winter annuals, treat when plants are in an early growth stage (below 6 inches in height) after most have germinated. For best results on tall tescue, treat when fescue is in or beyond the 4 to 6-leaf stage.

WEEDS CONTROLLED

Rate recommendations for control or suppression of winter annuals and tall feacuse are listed below.

Apply the recommended rates of this product alone or as a tank mixture in 10 to 25 gallons of water, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acce.

for the best recommendation for the mixture of weeds within your geographic area, contact your Monsanto sales representative.

WEEDS CONTROLLED OR SUPPRESSED - WITH Roundup ALONE*

NDTE: C = Control

S = Suppression

Ro	u nd u	p" F(UKD ()Z/AC	RE	
8	12	16	24	32	64	_
S	С	C	C	C	C	
\$	C	C	C	C	C	
\$	C	C	C	С	C	
\$	C	C	С	С	С	
	8 S S	8 12 S C S C	8 12 16 S C C S C C	8 12 16 24 S C C C S C C C	8 12 16 24 32 S C C C C S C C C C	S C C C C C C S C C C C C

Chickweed, common Stellaria media	S	c	£	C	·¢	С	
Clover, crimson lidolium incarnatum	•	\$	S	C	С	C	
Clover, large hop Infolium campestre	•	\$	\$	C.	ε	С	
Fescue, tall Festuca arundinaceae	•	•	٠	•	S	S	
Geranium, Carolina Geranium carolinianum	•	•	\$	\$	C	С	
Henhit Lamium amplexicaule	•	S	С	С	C	C	
Ryegrass, halian Lolium multiflorum	•	•	S	¢	C	С	
Speedwell, corn Veronica arvensis	5	C	£	C	c	C	
Vetch, common	•	•	S	C	¢	С	

^{*} These rates apply only to sites where an established competitive run is present

WEEDS CONTROLLED OR SUPPRESSED WITH Roundup PLUS QUST*

$$\label{eq:solution} \begin{split} \text{NOTF:} & \ C = \text{Control} \\ S = \text{Suppression} \end{split}$$

Roundup" + OUSI Roundup (FL 0Z/A) 8 12 12 16 16 12 16 WEED SPECIES Barley, little 0000000 Haideum pusitium Bedstraw, catchweed $\texttt{C} \; \texttt{C} Galium aparine Bluegrass, annual 5 C C C C C C Poa annua Chervil 0000000 Chaerophyllum tainturieri Chickweed, common S E C C C C C Stellana media Clover, crimson 5 S S S C C C Iritolium incarnatum Clover, large hop S S S C C Infolium campestre Fescue, tell \$ 'S Festuca arundinaceae Geranium, Carolina S C C C C Geranium carolinianum

Henbît Lamium amplexicaule	•	S	C	C	С	C	C
Ryegrass, Italian Lolium multillorum	•	5	S	C	С	€	C
Speedwell, com Veronica arvensis	\$	C	C	£	C	C	C
Vetch, common . Vicia sativa	C	c	С	C	C	c	С

These rates or mixtures of rates apply only to sites where an established competitive turk is present.

RELEASE OF ACTIVELY GROWING BERMUDAGRASS

When applied as directed, this product will aid in the release of bermudagrass by providing control of annual species histed in the "WEEDS CONTROLLED" section of this and the Oust label, and suppression or partial control of certain perennial weeds.

For control or suppression of those annual species tisted on this fabel, use 1 to 3 pints of this product as a broadcast spray in 10 to 25 gallons of spray solution per acre. Use the lower rate when treating annual weeds below 6 inches in height (or length of ronner in annual vines). Use the higher rate as weeds increase in size or as they approach flower or seedhead formation.

Use the higher rate of this product for partial control of the following perential species. Use the lower rates for suppression of growth. For best results, see the "Weeds Controlled" section of this label for proper stage of growth. Bahiagrass

Johnsongrass*

Paspalum notatum

Sorghum halepense

Bluestem, silver Andropogon saccharoides

Trumpetcreeper**

Campsis radicans

Fescue, tall

Vaseygrass

Festuca arundinacea

Paspalum uvillei

*Control at the higher rates.

**Suppression at higher rates only.

This product may be tank-mixed with Oust. If txnk-mixed, use no more than 1 to 2 pints per acre of this product with 1 to 2 ounces of Oust per acre.

Use the lower rates of both mixtures to control annual weeds below 6 inches in height for runner length in annual vines) that are listed in the "WEEDS CONTROLLED" section of this booklet and the Oust label. Use the higher rates as annual weeds increase in size and approach the flower or seedhead stages.

Use the higher rates of this product to provide partial control of the following perennial weeds. Use the tower rates for suppression of growth.

Bahiagrass

Johnsongrass*

Paspalum notatum

Sorghum halepense

Bluestem, silver

Paarjoe**

Andropogon saccharoides

Diodia teres

Broomsedge Andropogon virginicus

Trumpetereaper *
Campsis radicans

Dock, curty

Jock, curty Rumex crispus Vaseygrass

Paspalum urvitlei

Doglennel

giron and dilan

Vervain, blue

Eupatorium capillilorium

Verbena hastata

Fescue, Lall

Festuca arundinacea

*Suppression at nigher rates only.

""Control at the higher rates.

Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment but regrowth will occur under moist conditions. Repeat applications in the same season are not recommended, since severe injury may result.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used

COOL SEASON TURF GROWTH REGULATION

When applied as directed, this product will suppress growth and seedhead development of listed turl species in industrial sites.

This product is recommended for management of coarse turi on roadside rights-of-way or other industrial areas. On not use on high-quality turf or other areas where some turf color changes cannot be tolerated. Slight turf discoloration may occur but turf will regreen and regrow under moist conditions as effects of this product wear off. Apply 4 to 6 fluid ounces of this product per acre alone or in a recommended tank minute. Spray volumes of 10 to 40 gallons per acre are recommended.

When using this product, \min 2 quarts of a nonionic surfactant per 100 gallons of spray solution.

This product can be used for growth and seedhead suppression of:

Tall Fescue Smooth Brome

For best results, apply this product in a recommended tank mixture to actively growing turfgrasses after greenup in the spring of the year. For suppression of seedheads, applications must be made before boot-to-seedhead stage of development. Applications made from seedhead emergence until maturity may result in turf discoloration or injury.

After moving or removal of seedheads, this product in a recommended tank mixture may also be used to suppress the growth of certain turigrasses. Allow turf to recover from stress caused by heat, drought, or moving before making applications. Applications made to turf ender stress may increase the potential for discoloration or injury.

<u>ANHUAL GRASSES</u>

For growth suppression of some annual grasses such as annual ryegrass, wild barby and wild bals, apply 3 to 4 fluid ounces of this product in 10 to 40 gallons of spray solution per acre. Applications should be made when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments made after seedhead emergence may cause injury to the desired grasses.

TANK MIXTURES

For the following tank mixtures, consult each product label for weeds controlled and the correct stage of application. Do not treat furf under stress.

Tank mixtures plus 2,4-D Amine

For additional weed control benefits, up to 1 pound a.i. per acre of 2,4-D amine may be added to the following tank mixtures. Consult the tabel for 2,4-D amine for weeds controlled.

TALL FESCUE

Roundup plus Telar*

For suppression of fall lescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.5 nunce of telar per acre.

This tank mixture can also be applied after mowing or removal of tall fescue seedheads for terf growth suppression. Make only one of the above applications per growing season.

Roundup plus Qust

For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of 0ust per acre.

Roundup plus Escart's

This tank missure can be applied after moving or removal of tall fescue seedheads for turf growth suppression and control or partial control of some annual weeds. Use up to 1/3 ounce of Escort per acre.

NOTE: This product is not registered for use with Escort in California.

SMOOTH BROME

Roundup plus Oust

For suppression of smooth brome growth and seedheads and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

BAHIAGRASS SEEDHEAD AND VEGETATIVE SUPPRESSION

When applied as directed in the indicated noncrop areas (roadsides, airports, golf course roughs, and plant sites), this product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with single applications and approximately 120 days with sequential applications.

Apply this product 1 to 2 weeks after full greenup of bahiagrass or after the bahiagrass has been mowed to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 Iluid ounces per acre of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume may be made at approximately 45 day intervals to extend the period of seedhead and vegetative growth suppression, for continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product per acre plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces per acre plus nonionic surfactant may be made approximately 45 days after the last application.

A tank mixture of this product plus Oust may be applied only on roadsides for seedhead inhibition and vegetative suppression. Apply 6 fluid ounces per acre of this product plus 0.25 ounce per acre of Oust, plus 0.5 to 1 percent nonionic surfactant by total spray volume 1 to 2 weeks following an initial spring mowing. When using this product plus Bust for suppression of bahiagrass, make only 1 application per year.

CROPPING SYSTEMS

When applied as directed for "CROPPING SYSTEMS", under the conditions described, this product controls annual and

perennial weeds listed on this label, prior to the emergence of direct seeded crops or prior to transplanting of crops listed on this label.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for essential product performance information.

See the following "CROPPING SYSTEMS" sections for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS OR FRUIT OF DESIR-ABLE CROPS, PLANTS, TREES OR OTHER DESIRABLE VEGETA-TION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Except as otherwise specified on this label, repeat treatments must be made before the crop emerges in accordance with the instructions of this label.

Except as otherwise specified in a crop section of this tabel, the combined total of all treatments must not exceed 8 quarts per acre of this product per year.

Do not plant subsequent crops other than those on the label for 30 days following application.

Do not harvest or feed treated vegetation for 8 weeks following application. Following spot treatment or selective equipment use, allow 14 days before grazing domestic tivestock or harvesting forage grasses and legumes.

80W CROPS CORN (ALL)* COTTON* PEANUTS SORGHUM (MILO)* SOTBEANS* SUGAR CANE* CEREAL GRAINS

TANGORS TREE NUIS ALMOND BEECHNUT BRAZIL NUT

h.

TANGELO

TANGERINE

BARLEY" BUCKWHEAT* MILLET (PEARL PROSO)*

CASHEW CHESTAUT CHINQUAPIN FILBERT (MAZELMUT)

BUTTERNUT

*2TAG RICE** RYE*

HICKORY NUT MACADAMIA PECAN PISTACHIO

TRITICALE* WHEAT (ALL)* WILD RICE+

WALNUT (BLACK, ENGLISH) VIHE CROPS

<u>CITRUS</u> CALAMONDIN CHIRONIA CITRON

AIW) FRUIT TREE FRUITS APPLE

GRAPES

GRAPEFRUIT KUMQUAT

LEMON

APRICOTS CHERRY (SWEET, SOUR)

LIME

LOQUAT MAYKAW NECTARINE OLIVE

MANDARIN ORANGE ORANGE (ALL) PUMMELO

PEACH PEAR PLUM/PRUNE (ALL) QUINCE **YEGETABLES** ARTICHOKE. IERUSALEM ASPARAGUS* BEANS (ALL) **BEET GREENS** BEETS (RED,SUCAR) SROCCOLI (ALL) BRUSSELS SPROUTS CABBAGE (ALL) CABBAGE CHINESE CANTALOUPE*** CARROT CABLIFLOWER CASARA MELON*** CELERY CHARD, SWISS CHICORY COLLARDS CREMSHAW MELON*** CUCUMBER*** EGGPLANT*** ÉNDIYE GARLIC***

TOMATILLO*** TOMATO***† TURNIP WATERCRESS*** WATERMELON*** YAMS SMALL FRUITS AND BERRIES **BLACKBERRY** BLUEBERRY BOYSEKBERRY CRANBERRY CURRANT DEWBERRY ELDERBERRY GOOSEBERRY HUCKLEBERRY LOGANBERRY **OLALLIEBERRY** RASPBERRY (BLACK, RED) FORAGE CROPS AND LEGUMES ALFALFA* FORAGE GRASSES* FORAGE LEGUMES* TROPICAL CROPS ACEROLA GOURDS*** ATEMOYA

GROUND CHERRY*** AVOCADO HONEYDEW MELON*** BAHANA (PLANTAINS) HONEY BALL MELON*** BREADFRUIT HORSEBADISH CANISTEL MALE CARAMBOLA KOHLRAB) CHERIMOYA LEEK **COCOA BEANS** LENTILS COFFEE LETTUCE DATES MANGO MELON*** FIGS MELONS (ALL)*** GEHIP MUSKMELON*** GUAYA **MUSTARD GREENS** JABOT/CARA OKRA JACK/FRUIT ONION LONGAN RAPE GREENS LYCHEE PARSLEY MANGO PARSHIPS PAPAYA PEAS (ALL) PASSION FRUIT PEPPER (ALL)*** PERSIMMONS PERSIAN MELON*** PINEAPPLE**** POTATO (IRISH, SWLET) POMEGRANATE PUMPKIN*** SAPODILLA RADISH SAPOTE (BLACK, MAMEY RHUBARB WHITE) RUTABAGA SOURSOP SPINACH (ALL) SUCAR APPLE KZAUGZ TAMARINO (SUMMER, WINTER)*** TEA

- **Do not treat rice fields or levees when the fields contain flood water
- ***Apply only prior to planting. Allow at least 3 days between application and planting.
- ****Do not feed or graze treated pineapple forage following application.

f Use is restricted to direct seeded crops only.

When applying this product prior to transplanting crops into plastic mutch, care must be taken to remove residues of this product from the plastic prior to transplanting. Residues can be removed by 0.5 inch natural rainfall or by applying water via a sprinkler intigation system.

Spot Treatment (Only those crops with "*" can be spot beated.)—Applications in growing crops must be made prior to heading of small grains and milo, initial pod set in soybeans, sitking of com, or boll opening on cotton.

For forage grasses and forage legumes see "SPOI TREAT-MENT" in the "PASTURES" section of "CROPPING SYSTEMS" in this label.

For didution and rates of application using boom or hand-held equipment, see "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" and "WEEDS CONTROLLED" sections of this label.

NOTE: FOR FORAGE GRASSES AND FORAGE LEGUMES, NO MORE THAN ONE-TENTH OF ANY ACRE SHOULD BE TREATED AT ONE TIME, FOR ALL OTHER CROPS, OO NOT TREAT MORE

THAN 10 PERCENT OF THE TOTAL FIELD AREA TO BE HAR-

THE GROP RECEIVING SPRAY IN TREATED AREA WILL BE KILLED. TAXE CARE TO AVOID DRIFT OR SPRAY OUTSIDE TARGET AREA FOR THE SAME REASON.

Selective Equipment—This product may be applied through recirculating sprayers, shielded applicators or wiper applicators in cotton and soybeans. Shielded and wiper applicators may also be used in tree crops and grapes. Wiper applicators may be used in rutabagas, forage grasses and forage legumes, including pasture sites and grain sorghum (milo). See the "SELECTIVE EQUIPMENT" part of the "APPLICATION"

See the "SELECTIVE EQUIPMENT" part of the "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for information on proper use and calibration of this equipment.

Allow at least the following time intervals between application and harvest:

Caramoola, Cherry, Citrus, Grapes, Dates, Jaboticaba, Jackfruit, Longan, Lychee, Passion Fruit, Pear, Persimmons, Rotabagas, Sapodilla,

 On not use roller applicators. On not feed or graze treated mito fooder. Do not ensile treated vegetation.

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ASPARAGUS

When applied as directed for "CROPPING SYSTEMS" under the conditions described, this product controls weeds listed on this tabel in apparagus.

For specific rates of applications and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

Prior to Grop Emergence—Apply this product prior to crop emergence for the control of emerged labeled annual and perennial weeds. DO NOT APPLY WITHIN A WEEK BEFORE THE FIRST SPEARS EMERGE.

Spot Treatment—Apply this product immediately after cutting, but prior to the emergence of new spears. Do not treat more than 10 percent of the total field area to be harvested. Do not harvest within 5 days of treatment.

Postharrest—Apply this product after the last harvest and all spears have been removed. If spears are allowed to regrow, detay application, until terms have developed. Delayed treatments should be applied as directed or shielded spray in order to avoid contact of the spray with terms, stems or spears. Direct contact of the spray with the asparagus may result in serious crop injury.

NOTE: Select and use recommended types of spray equipment for postemergence posthanvest applications. A directed spray is any application where the spray partern is atigned in such a way as to avoid direct contact of the spray with the crop. A shielded spray is any application where a physical barrier is positioned and maintained between the spray and the crop to prevent contact of spray with the crop.

BERRIES AND SMALL FRUITS

For cranberries, apply after truit set and no later than 30 days

For other berries, apply as a preplant troadcast application, or as a directed spray or wiper application post-planting.

Wiper applicators may be used in cranberties in accordance with instructions in this section.

See "GENERAL INFORMATION" and "MDUNG, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for essential product performance information.

See the "SELECTIVE EQUIPMENT" part of the "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for information on recomminended use and calibration of this equip-

Allow a minimum of 14 days between last application and harvest of small fruits and between.

For Wick or other Wiper Applicators—Mix 1 gallon of this product in 4 gallons of water to prepare a 20 percent solution. Apply the solution to emerged weeds. Apply after cranberry fruit set and no later than 30 days before harvest.

In severe infestations, reduce equipment ground speed to ensure that adequate amounts of this product are wiped on the weeds. A second treatment in the opposite direction may be beneficial.

On not permit herbicide solution to contact desirable vegetation, including green shoots, canes or foliage. ·-

FALLOW AND REDUCED TILLAGE SYSTEMS

FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO SUPPLE-MENTAL LABEL.

Use this product in fallow and reduced tillage systems for control of annual weeds prior to emergence of crops listed in this label. Refer to the "WEEDS CONTROLLED" section of this label for specific rates and instructions. This product may be applied using ground or aerial spray equipment. See the "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for instructions.

TANK MIXTURES

Roundup plus BANYEL plus Nonionic Surfactant

Roundup plus 2,4-0 plus nonionic surfactant

Roundup plus GOAL™ plus Nonionic Surfactant

DO NOT APPLY BANVEL OR 2.4-D TANK MIXTURES BY AIR IN CALIFORNIA.

Applications of 2,4-D or Banvel must be made at least 7 days prior to planting com.

The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed

species. Some crop injury may occur if Banvel is applied within 45 days of planting. Refer to the Banvel and 2,4-D labels for cropping restrictions and other use instructions.

Roundup plus Goal Tank Mixtures

This product alone or in tank mixtures with Goal plus 0.5 to 1 percent nunicinic surfactant by total spray volume will provide control of those weeds fisted below

Make applications when weeds are actively growing and at the recommended stages of growin. Andid spraying when weeds are subject to moisture stress, when dust is on the foliage or when straw canopy covers the weeds.

" 16 fluid oz/ac	re
asses at	-
61 61 61 61 61 61 61 61 61 61 61 61 61 6	
	12"

NOTE: Use 32 fluid cunces of this product per acre where heavy weed densities exist.

Roundup* 12 fluid ÷ GOAL** 2 to 4 fluid oz/a		Roundup* 16 fluid oz/ac + GOAL** 2 to 4 fluid oz/acre		
Annual grasses abov	e	Annual weeds above plus:	2	
Cheeseweed,		Checseweed,		
common	3-	сопппэп	6"	
Chickweed	3"	Groundsel	6-	
Groundsel	3*	Chicoveed	12"	
Rocket, London	6-	Rocket, Landon	12	
Shepherdspurse	Б"	Shepherdspurse	12"	

NOTE: Use 32 fluid ounces of this product per acre in mixtures. with 2 to 4 floid nunces of Goal per acre where beavy weed densities exist.

- * Maximum height or length in inches.
- ** Use the higher rate of Goal when weeds approach maximum recommended height or stands are dense.

These recommended tank mixtures may be applied using ground or aerial spray equipment. Refer to the "WEEDS CONTROLLED" section of this label for specific rates and instructions.

ECOFARMING SYSTEMS -

The recommendations made in this section are not registered for use in California.

The Ecofarming System consists of the following rotation: winter wheat, corr/sorgaum, ecofallow.

Use the following tank mixtures for control of emerged annual weeds before planting corn or sorghum in the Ecolarming

> Roundup at 16 to 20 fluid ounces per acre plus

2,4-0 at 0.375 to 0.5 pound a.i. per acre plus

ATRAZINE at 0.75 to 1 pound a.i. per acre plus

LASSO® at 2.5 to 3 quarts per acre

The above tank mixture should be applied in 28-0-0 or 32-0-0 liquid fertilizer carrier at 20 to 30 gallons per acre. The liquid fertilizer may be diluted with water to achieve the desired car-

WEEDS CONTROLLED-The following weeds, up to a maximum height of 4 inches, will be controlled:

Broma, downy

Fextail, yellow

Bromus tectorum

Setaria lutescens

Bromus secalinus

Kochia* Kochia scoparia

Fortail, green

Lettuce, prickly

Lacruca semola

Serana vindis

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Pigweed, redroot

Amaranthus retroflerus

Wheat, volunteer Iriticum aestivum

Thistle, Russian Salsola kali

*For improved control of kochia, add 4 fluid ounces per acre (0.125 pound a.i. per acre) of Banvel to the above tank mixture.

Risk of crop injury from 2.4-0 or Banvel can be reduced by applying this treatment 7 to 14 days before planting.

Refer to the label booklet for Lasso herbicide for preemergence weed control achieved by this tank mixture.

Refar to the specific product tabels for crop rolation restrictions and cautionary statements for all products used in these tank mixtures.

AID TO TILLAGE

This product, when used in conjunction with preplant tillage practices, will provide control of downy brome, creat, volunteer wheat, tansy mustard and loxiail. Apoly 8 fluid ownces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make applications when weeds are actively growing and before they are 6 inches in height. Application must be followed by conventional tillage practices no taler than 15 dloys after treatment and before regrowth occurs. Allow at least 1 day after application before tillage. Tank ministeres with residual herbicides may result in reduced performance.

PASTURES

Apply this product prior to planting forage grasses and legumes.

Pasture or Hay Crop Renovation—When applied as a broadcast spray, this product controls the annual and perennial weeds listed in this label prior to planting forage grasses or legiones. Remove domestic livestock before application and wait 8 weeks after application before grazing or barvesting.

Spot Treatment—When applied as a spot treatment as recommended, this product controls annual and perennial weeds listed in this label which are growing in pastures, forage grasses and forage legumes composed of bahiagrass, bermudagrass, bluegrass, brome, fescue, orchardgrass, ryegrass, timothy, wheatgrass, alkalfa or clover.

Wiper Application—When applied as directed, this product controls or suppresses the weeds listed under "WIPER APPLI-CATORS" in the "SELECTIVE EQUIPMENT" section of this tabel.

For spot treatment and wiper application, apply in areas where the movement of domestic livestock can be controlled. No more than one-tenth of any acre should be treated at one time. Further applications may be made in the same area at 30-day intervals. Remove domestic livestock before application and wait 14 days after application before grazing fivestock or harvesting.

SUGARÇANE

When applied as directed for "CROPPING SYSTEMS", under the conditions described, this product controls those emerged annual and perennial weeds listed on this label growing in or around sugarcane or in fields to be planted to sugarcane. This product will also control undesirable sugarcane.

NOTE: Where repeat treatments are necessary, do not exceed a total of 10.6 quarts of this product per acre per year. Do not apply to vegetation in or around ditches, canals or ponds containing water to be used for irrigation.

Broadcast Treatment—Apply this product in 10 to 40 gallons of water per acre on emerged weeds growing in fields to be planted to sugarcane.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

For removal of last stubble or ration cane, apply 4 to 5 quarts of this product in 10 to 40 gallons of water per acre to new growth having at least 7 or more new leaves. Allow 7 or more days after application before tillage.

Spot Treatment in or Around Sugarcane Fields—for dilution and rates of application using hand-held equipment, see "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" and "VEEDS CONTROLLED" sections of this label.

For control of volunteer or diseased sugarcane, make a 1 percent solution of this product in water and spray to wet the tollage of vegetation to be controlled.

NOTE: When spraying volunteer or diseased sugarcane, the plants should have at least 7 new leaves.

Carried and Michaelle

Avoid spray contact with healthy cane plants since severe damage or destruction may result.

Do not feed or graze treated sugarcane forage following application.

CONSERVATION TILLAGE, MINIMUM TILLAGE AND NO-TILL SYSTEMS CORN AND SOYBEANS Tank Mixtures

The recommendations made in this section are not registered for use in California.

When applied as recommended under the conditions described, the tank mixtures listed in this section control many emerged weeds, and give preemergence control of many annual weeds where com or soybeans will be planted directly into a cover crop, established sod or in previous crop residues.

Refer to specific product labels for crop rotation restrictions and cautionary statements of all products used in these tank mixtures. For mixing instructions, see the "MOXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this tabel.

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Apply these tank mixtures in 10 to 20 gattons of water or 10 to 60 gations of nitrogen solution per acre before, during or after planting. Do not apply these mixtures after crop emergence.

When tank mixing with residual heroicides, add an agriculturally approved nomionic surfactant at 0.5 to 1 percent by volume of spray solution. The addition of 1 to 2-percent dry ammonium sulfate by weight may increase the performance of this product.

NOTE: When using these tank mixtures, do not exceed 4 quarts of this product per acre.

CORN

For residual control, this product may be tank-mixed with the following herbicides or combination of perbicides:

LASSO"/ALACHLOR ATRAZINE
LARIAT" CYANAZINE
BULLET" SIMAZINE
DUAL" PROMI"

BICEPT

MICRO-TECH*

PARTNER*

for improved burndown, this product may be tank-mixed with 2.4-D or dicamba. Applications of 2.4-D or dicamba must be made at least 7 days prior to planting corn. See the "WEEDS CONTROLLED" section for specific rate information.

SOYBEANS

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

CANOPY** COMMANO** LOROXª PLUS

COMMAND[®] COMMAND[®] CEMINI[®] PREVIEW"
PROWL'*
TURBO"

LASSO*/ALACHLOR LEXONE* LINURON SCEPTER**
SENCOR**
SQUADRON**

PURSUIT*
PARTNER*

PURSUIT PLUS"
MICRO-TECH

For improved burndown, this product may be tank-mixed with the following herbicides:

2,4-D8 2,4-D *

*See the label for 2,4-0 for intervals between application and planting.

CORN AND SOYBEANS

Annual Weeds—for difficult-to-control weeds such as fall panicum, barnyardgrass, crabgrass, shattercane and broadleaf signatgrass up to 2 inches fall, and Pennsylvania smartweed up to 6 inches fall, apply this product at 2 pints per acre in these tank mixtures. For other labeled annual weeds, apply 1 to 1.5 pints of this product per acre when weeds are less than 6 inches fall, and 2 to 3 pints when weeds are over 6 inches fall. For a complete tist of annual

weeds controlled, see the "WEEDS CONTROLLED" section of this label.

Perennial Weeds—At normal application times in minimum tillage systems, perennial weeds may not be at the proper stage of growth for control. See the "WEEDS CONTROLLED" section of this label for the proper stage of growth for perennial weeds.

Use of 2 to 4 quarts of this product per acre in the tank mixtures mentioned above, under these conditions provides top kill and reduces competition from many emerged perennial grass and broadleaf weeds. For emerged perennial weeds controlled, see the "WEEDS CONTROLLED" section of this label.

To obtain the desired stage of growth, it may be necessary to apply this product alone in the late summer or fall and then tollow with a label-approved, seedling weed control program at planting.

USE OF THESE TANK MOXTURES FOR BERMUDAGRASS OR JOHNSONGRASS CONTROL IN MINIMUM TITLAGE SYSTEMS IS NOT RECOMMENDED. For bermudagrass control, follow the instructions under "CONTROL OF PERENNIAL WEEDS" section of this label and then use a label-approved, seedling weed-control program in a minimum tillage or conventional tillage system. For Johnsongrass control, follow instructions under "CONTROL OF PERENNIAL WEEDS" section of this label, and then use a label-approved, seedling weed-control program with conventional bilage.

PREHARVEST APPLICATIONS

When applied as directed under the conditions described, this product controls annual and perennial weeds listed on this label prior to the harvest of cotton and sorpheans.

SOYBEANS

Apply after pods have set and lost all green color. Allow a minimum of 7 days between application and harvest of soybeans. Care should be taken to avoid excessive seed shatter loss due to ground application equipment.

Do not graze or harvest treated crop for livestock feed within 25 days of last preharvest application.

DO NOT APPLY MORE THAN 6 QUARTS PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS.

DO NOT APPLY MORE THAN I QUART PER ACRE OF THIS PRODUCT BY AIR.

For specific rates and application instructions for control of various annual and perennial weeds, see the "WEEDS CON-TROLLED" section of the Roundup label booklet.

This product may be applied by both ground and aerial application equipment. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of the Roundup label booklet for instructions for ground and aerial applications.

NOTE: It is not recommended that soybeans grown for seed be treated because a reduction in germination or vigor may occur.

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The use of this product for preharvest soybeans is not registered in California.

COTTON

Broadcast Applications—This product may be applied using either aerial or ground spray equipment. For ground applications with broadcast equipment, apply this product in 10 to 20 gallons of water per acre. For aerial applications, apply this product in 3 to 10 gallons of water per acre.

FOR AERIAL APPLICATIONS, REFER TO THE "APPLICATION EQUIPMENT AND TECHNIQUES" AND "REFIAL EQUIPMENT" SECTIONS OF THIS LABEL.

FOR AERIAL APPLICATIONS IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

OO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR.

Weed Control—For specific rates of application and instructions for control of various annual and perennial weeds for this product used alone or in the following tank mixtures, see the "WEEDS CONTROLLED" section of this label.

To control Johnsongrass using multiple-directed or broadcast over-the-top spray equipment, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure complete coverage.

For partial control of field bindweed, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre. Apply when bindweed is actively growing and 12 inches or greater in length, Reduced performance may result if bindweed is under drought stress.

TANK MIXTURES

Roundup plus DEF® 6 Roundup plus Folex™ Roundup plus Prep™ Roundup plus DEF 6 or Folex

When applied as recommended under the conditionsdescribed, these tank mixtures control annual and perennial weeds listed on this tabel prior to the harvest of cotton. For application guidelines, precautions and use-rates, refer to the: DEF, Folex and Prep tabels.

This product when tank mixed with DEF 6 or Foles defoliants may provide enhancement of cotton leaf drop and regrowth inhibition.

Timing of Application—Apply this product or these tank mixtures for preharvest weed control after 60 percent of the cotton bolls have opened.

NOTE: DO NOT APPLY TO CROPS GROWN FOR SEED. Allow a minimum of 7 days between application and harvest. Do not feed or graze treated conton forage or hay following preharvest applications.

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TREE AND VINE CROPS

This product is recommended for weed control in established groves, vineyards, and orchards, or for site preparation prior to transplanting crops listed in this section. Applications may be made with boom equipment, CDA, shielded sprayers, hand-held and high-volume wands, tances, orchard guns, or with wiger applicator equipment, except as directed in this section. See the "APPLICATION EQUIPMENT AND TECHNOUSS" section of this label for specific information on use of equipment.

When applying this product, refer to the "WEEOS CON-TROLLED" section of this label and to specific recommendations in this section for rates to be used.

NOTE

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual weed control. For subsequent weed control, use repeated applications of this product. Do not apply more than 10.6 quarks of this product per acre per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

AVOID PAINTING OUT STUMPS WITH THIS PRODUCT AS INJURY RESULTING FROM ROOT GRAFTING MAY OCCUR IN ADJACENT TREES.

Reduced control may result when applications are made to account or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

For specific rates of applications and instructions, see the "WEEDS CONTROLLED" section of this label, and to specific recommendations which follow.

MIDDLES MANAGEMENT

FOR ANNUAL WEEDS IN MIDDLES BETWEEN ROWS OF TREE AND VINE CROPS

For citrus crops treat uniformly between trees.

Roundup

Roundup plus GDAL™

This product alone or in mixtures with Goal will control or suppress the annual weeds tisted below.

Apply the recommended rates of this product, either alone or in mixtures with Goal, plus 0.5 to 1 percent nonionic surfactant by spray volume in 3 to 10 gallons of water per acre. Apply when weeds are actively growing and less than 6 inches in height or diameter. If weeds are under drought stress, integate prior to application. Reduced control may occur if weeds have been mowed prior to application. Up to 48 fittid nunces

per acre of this product may be used to control weeds, which have been mowed, are stressed, or are growing in dense populations.

WEED SPECIES	MAXIMUM HLIGHT/ DIAMETER (IXCHES)	RATE P ROUNDUP* (FLUID OUNCES)	(FLUID
Barley Hordeum volgare	5	8	· -
Bluegraus, annual Poa annua			
Barnyardgrass Echinochloa erus-galli	6	12	
Chickweed, common Stellaria media			
Red Maids Calandrinia ciliata			
Crabyrass Digitaria spp.	6.	16 OR	_
Fleabane, bairy Conyza bonariensis	}	16 to 32 +	4 to 16**
Groundsel, common Senecio vulgaris			
lunglerice Echinochloa colonum			i

STATISTACTORIUM ARTORIUM SANARAS SANAR

Lambsquarters,	6	16	_
comman	1	0R	
Chenopodium album		16 to 32 +	4 to 16**
Pigweed, redroot			
Amaranthus retrollexus	i		
Rocket, London		-	
Sisymbrium inio			
Ryegrass, common			
Lolium mututlarum	l		
Shepherdspursa			
Capsella oursa-pastoris			
Sowthistle, annual	ļ	i	
Sanchus aleraceus			
Cheaseweed, common	3	12 to 32 +	4 to 16
Malva spp.			10.10
Cheeseweed, common	6	16 to 32 +	A to 16
Malva spp.	_	10 252	41010
Filares*			
Erodium spp.			
Horseweed/Marestail			
Conyra canadensis			
Nettle, stinging			i
Urtica dioica			
Purkelane, common*			!
Purtulaça oleracea			-

<u>PROMETER STATES A PROGRAMMENTAL CONTRACTOR </u>

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*Suppression only.

**The mixture of this product plus Goal is recommended when weeds are stressed or growing in dense populations.

STRIPS

FOR ANNUAL AND PERENNIAL WEEDS IN STRIPS OF TREE AND VINE CROPS

TANK MIXTURES WITH RESIDUAL HERBICIDES

When applied as a tank mixture, this product provides control of the emerged annual weeds and control or suppression of emerged perennial weeds listed in this tabet. The following residual herbicides will provide preemergence control of those weeds listed in the individual product labels.

Roundup plus GOAL™ 1.6E

Roundup plus KARMEX** OF Roundup plus KROYAR** (

Roundup plus KROVAR® II Roundup plus Simazine, Princep Caliber® 90

Roundup plus SIMAZINE 4L

Roundup plus SIMAZINE 80W

Roundup plus SOLICAM® 80DF

Roundup plus SURFLAN® AS

Roundup plus SURFLAN 75W

Roundup plus SIMAZINE (80W, or 4L, or PRINCEP CALIBER 90) plus Surflan (AS or 75W)

Roundup plus GOAL (1.6E) plus SURFLAN (AS or 75W)

Roundup plus GOAL (1.6E) plus Simazine

(80W, or 4L, or PRINCEP CALIBER 90)

Roundup plus GOAL (1.6E) plus Surflan (AS or 75W) plus Simazine (80W, 4L, or Princep Caliber 90)

Do not apply these tank mixtures in Puerto Rico.

When tank-mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution.

Refer to the individual product labels for specific crops, rates, geographical restrictions and precautionary statements.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the labels of all products.

RECOMMENDED RATES

Annual Weeds—Apply 1 to 5 quarts per acre of this product in these tank mixtures. Use rates at the higher end of the recommended range when weeds are stressed, growing in dense populations or are greater than 12 inches tall.

Perennial Weeds—Apply 1 pint to 5 quarts per acre of this product in these tank mixtures to control or suppress perennial weeds. Follow the recommendations in the "WEEDS CON-IROLLED" section of this label for stage of growth and application rates for specific perennial weeds.

Roundup plus GOAL plus SIMAZINE/SURFLAN

This product plus flow rates of Goal in 3-way or 4-way mixtures with Simazina and/or Sorflan will provide posternergence control of the weeds listed below.

Refer to the individual simazine and Surflan labels for preemergence rates, weeds controlled, precautionary statements and other important information.

Apply these tank mixtures in 3 to 40 gallons of water. Add 0.5 to 1 percent contonic surfactant by total spray-volume to the solar solution.

Apply 1 to 5 quarts per acre of this product ofus 4 to 48 fluid ounces per acre of Goal ofus labeled rates of simazine and/or Surflan to control the following weeks:

Barley, wild

Hardeum leparinum

Horseweed/Marestail
Convra canadensis

Nettle, stinging

Pineappleweed

Matricaria matricariodes

Rocket, London

Sisymbrium irio

Shepherdspurse

Cansella hursa-pastoris

Sowthistle, annual

Sonehus oleraceus

Bluegrass, annual

Poa annua

Cheeseweed, common

Malva spp.

Chickweed, common

Stellaria media Filaree*

Erodium spp. Fleabane, bairy

Comyra bonariensis Groundsel, common Senecio vulgaris

*Use a minimum of 1.5 quarts of this product in these mix-

NOTE: This recommendation does not preclude the use of Goal in these mixtures at higher, labeled rates for preemergence weed control.

PERENNIAL GRASS SUPPRESSION DORCHARD FLOORS

When applied as directed, this product will suppress vegeta tive growth as indicated below.

Bahi<u>aeras</u>

This product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with a single application and approximately 120 days with secondial applications. Apply this prod-

uct 1 to 2 weeks after full green-up or after mowing to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 third ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus nonionic surfactant may be made at approximately 45-day intervals to extend the period of seedhead and vegetative growth suppression. For communed seedhead suppression, sequential applications must be made orior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces may be made approximately 45 days after the last application.

Bermudagrass

For burndown, apply 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre. Use 1 quart of this product in 3 to 20 gallons of water per acre east of the Rocky Mountains. Use 1 to 2 quarts of this product in 3 to 10 gallons of water per acre west of the Rocky Mountains. Use this treatment only if reduction of the bermudagrass stand can be toterated. When burndown is required prior to harvest, allow at least 21 days to ensure sufficient time for burndown to occur.

Suppression only (east of the Rocky Mountains)—Apply 6 to 16 (hid ounces of this product plus 0.5 to 1 percent non-ionic surfactant by total spray volume in 3 to 20 gallons of water per acre no sooner than 1 to 2 weeks after hell greenup. Mowing prior to application may occur provided a mini-

mum height of 3 inches is maintained. Rates of 6 to 10 fluid ounces of this product plus nonionic surfactant should be used in shaded conditions or where a lesser degree of suppression is desired. Sequential applications may be made when regrowth occurs and bermodagrass injury and stand reduction can be tolerated.

Suppression only (west of the Rocky Mountains)—Apply 16 fluid cunces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre to bermudagrass up to 6 inches in height and no sooner than 1 to 2 weeks after hall green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Sequential applications may be made when regrowth occurs and bermudagrass injury and stand reduction can be tolerated.

Cool Season Grass Covers

For suppression of tall fescue, fine fescue, orchardgrass and quackgrass, apply 8 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by fotal spray volume in 10 to 20 gallons of water per acre. For best suppression, add ammonium sulfate to the spray solution at a rate of 2 percent by weight or 17 pounds per 100 gallons of spray solution.

For suppression of Kentucky bluegrass covers, apply 6 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant. Do not add ammonium sulfate.

For best results, mow cool-season grass covers in the spring to even their height and apply the recommended rate of this product 3 to 4 days after mawing. Avoid treating cool season grass covers under poor growing conditions, such as drought stress (drip infigition), disease or insect damage.

LOW VOLUME APPLICATION (FLORIDA AND TEXAS)

For burndown or control of the weeds listed, apply the recommended rates of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 30 gallons of water per acre. Where weed foliage is dense, use 10 to 30 gallons of water per acre.

Annual Weeds

Goatweed—Apply 2 to 3 quarts per acre of this product of the sounds of antinonium suifate per 100 gallons of water plus 0.5 to 1 percent nonionic serfactant by total spray volume. Apply in 20 to 30 gallons of water per acre when plants are actively growing the 2 quarts per acre when plants are less than 8 inches tall and 3 quarts per acre when plants are greater than 8 inches. If goatweed is greater than 8 inches tall, the addition of Xrovar II or Karmex may improve control. Use labeled rates for these residual products.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the Krovar II and Karmey labels.

Perennial Weeds

Apply when weeds are actively growing and at the growth stages listed in the "PERENNIAL WEEDS CONTROLLED" section of this label, if perennial weeds are moved, allow weeds to regrow to the recommended stage of growth.

S = Suppression PC = Partial centrol		Burndon Cantrol	≠n	
WEED Species	Raus 1 ot	ndup* R	ATE PER	ACRE 5 ots
Bermudagrass Guineagrass	В	•	PC	C
Texas and Florida Ridge Florida Flatwoods Paragrass Turpedograss	8 •	C 8 C	C C C	C .

TREE CROPS

Citrus*: calamondin, chironia, citron, grapetruit, kumquat, lemon, fime, mandarin orange, orange, pummalo, tangelo, tangene, tangers.

Muts**: almond, beechnut, Brazil nut, butternut, cashew, chestnuts, chinquapin, lilbert, hazel nut, hickory nut, macadamia, pecan, pistachio, walnut.

Poma Fruit*: apple, loquat, mayhaw, pear, quince,

Stone Fruit***: agricols, cherries, nectarines, olives, peaches, plums/prunes.

For cherries, any application equipment tisted in this section may be used in all status.

For citron and olives, apply as a directed spray only.

Any application equipment listed in this section may be used in apricots, nectarines, peaches and plums/prunes growing in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Texas, Utah and Washington, except for peaches grown in the states specified in the following paragraph. In all other states use wiper equipment and

ŝ

For PEACHES grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina; South Carolina and Tennessee only, apply with a shielded boom sprayer or shielded wiper applicator, which prevents any contact of this product with the foliage or bank of trees. Apply no later than 90 days after first bloom. Applications made after this time may result in severe damage. Remove suckers and low-hanging limbs at least 10 days prior to application. Avoid applications near trees with recent pruning wounds or other mechanical injury, Apply only near trees which have been planted in the orchard for 2 or more years. EXTREME CARE MUST HE TAKEN TO ENSURE NO PART OF THE PEACH TREE IS CONTACTED.

Iropical Fruit: acerola*, alemoya*, avocado*, banana* (plamains)****, breadfruit*, canistel*, carambola*, cherimoya*, cocoa beans*, coffee****, dales*, figs*, genip*, guava******, jaboticaba*, jackfruit*, longan*, lychee*, mango*, mayhaw*, oapaya******, passion fruit*, persimmons*, pomegranate*, sapodilla*, sapote*, soursop*, sugar apple*, Lamanind*, tea*, in coffee and banana, delay applications 3 months after transplanting to allow the new coffee or banana plant to become established.

NOTE:

- Allow a minimum of 14 days between last application and harvest.
- Allow a minimum of 3 days between last application and harvest of these crops, except for pistachio nuts.
 For pistachio nuts, allow a minimum of 21 days between last application and harvest.
- *** Allow a minimum of 17 days between last application and harvest.
- **** Allow a minimum of 28 days between last application and harvest.
- Allow a minimum of 1 day between last application and harvest.

VINE CROPS

Kiwi Fruit

Grapes: Any variety of table, wine or raisin grape may be treated with any equipment listed in this section.

Applications should not be made when green shouls, canes, or foliage are in the soray zone.

Allow a minimum of 14 days between last application and

In the nonheast and Great Lakes regions, applications must be made prior to the end of bloom stage of grapes to avoid injury.

- * Bullet, Lasso, Micro-Tech, Partner and Larial are registered trademarks of Monsanto Company.
- "Owst. Krovar, Escont, Telar, Canopy, Blades, Gemini, Lexone, Lorca Plus, Preview, and Karmex are trademarks of E.I. dePont de Nemours and Company.
- STARTER SELECTION OF THE SELECTION OF TH *Oual, Bicep, Princep and Caliber are trademarks of Ciba-Geigr Corporation.
 - Surflan is a trademark of Clanco Products Company.
 - * Sanvel and Sobcam are trademarks of Sandor, Inc.
 - ** Ronstar, Foles and Prep are trademarks of Rhone-Postenc, Inc.
 - "Goal is a trademark of Rohm and Haas Company.
 - " Serrom and Turbo are trademarks of Bayes AG.
 - * Provid, Pursuit, Pursuit Plus, Science and Squadron are trademarks of American Cyanamid Company,
 - * Command is a trademark of PMC Corporation.
 - * DEF is a trademark of Mobey Chemical Company.
 - "Macrofoll is a trademark of Union Carbide Agricultural Products, Ioc.
 - ** Thru-Yake is a trademark of Waldrum Socialities, Inc.

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This product is protected by U.S. Patent No. 4,405,531. Other patents pending. No license granted under any non-U.S. patent(s).

EPA Reg No. 524-445

\$98.07-000.29/53

In case of an emergency involving this product.

Catl Coffect, day or night, (314) 694-4000,

© MONSANTO COMPANY 1993

MONSANTO COMPANY AGRICULTURAL PRODUCTS ST. LOUIS, MISSOURI, 63167 U.S.A.

128

This product is protected by U.S. Patent No. 4,405,531, Other patents pending. No license granted under any non-U.S. patent(s).

EPA Reg. No. 524-445

898,07-000.29/53

In case of an emergency Involving this product, Call Collect, day or night. (314) 694-4000.

© MONSANTO COMPANY 1993

ACCEPTED

APR - 6 1994

Under the Federal Insecticide,
MPRINGER and Rodenboide Act,
ASSISTED FROM FOR The Pesticide
S. FERSHERSEN MINERAL S.A.
EPA Reg. No. 5 4 4 5

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005.

December 21, 1993

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor

Product Manager (25)

Subject: Roundup® Herbicide (EPA Reg. No. 524-445)

Submission of Final Printed Label Booklets and Notification of Minor

Label Changes

Dear Sir:

Monsanto is submitting final printed labels of a Roundup® herbicide label booklet for your files. This label was approved by the Agency on December 17, 1992.

We are also notifying you of the following minor changes that were made to the label:

- The statements required by the Worker Protection Standard have been included in this label (pp. 5-6, 8-9). These changes were submitted to the Agency on July 22, 1993; we have not yet received a response.
- Under the first aid statement for ingestion on page 5 we have added the statement "Never give anything by mouth to an unconscious person" at the request of California.
- The toll-free telephone number for more product information on page 8 has been changed.
- On page 16, we have noted that mistblowers are not registered tor use in California or Arizona.
- · We have elected not to print the uses for forestry site preparation, silvicultural

sites and rights-of-way in this version of the label (pp. 17, 60).

- The common name of the weed conyza bonariensis was incorrectly given as "fleabane flaxleaf". It has been corrected to read "hairy flaxleaf" on pages 36, 108, and 113.
- We have deleted the recommendation for a tank mixture with Goal to control yellow nutsedge, page 48.
- We have elected not to print pipelines and power and telephone rights-of ways as sites for noncrop use, page 60.
- We have incorporated the new 3-day preharvest interval (phi) for tree nuts on pages 89 and 119. This reduced phi was approved by the Agency on June 17, 1993. The phi for pistachios remains at 21 days.

Enclosed are five (5) copies of the label (version 1993-2: 898.07-000.29/53).

If you have any questions regarding this submission, please contact Dr. Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D.

Manager, Regulatory Affairs

Shula a. Schuette

(314) 694-7248

cc: R.P. Schneider S.A. Adams

	United States Environmental Pro Office of Pesticide Programs		Registrat	tion OPP Identifier Num
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4. Company/Product(Name) Roundup® Herbic	ide	PM# 25		X None
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Monsanto Compan		1, ,,,,,	t is similar or identic	cal in composition and lat
	, N.W., Suite 1100	to:		
Washington, D.C	20005	EPA Reg. No	· .	· · · · · · · · · · · · · · · · · · ·
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Manager, Regulatory Affairs

Sheila A. Schuette, Ph.D.

(Rev. 12-90) — Previous editions are obsolete — White - EPA File Copy (original)

5. Date

Yellow - Applicant copy

PAPERNORK REDUCTION ACT MOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 N Street, SV, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, executant. resubsission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:
1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];

2. Confidential Statement of Formula (EPA Form 8570-4);

Formulator's Exemption Statement (EPA Form 8570-27);

4. Five copies of draft labeling;

5. Three copies of any data submitted;

6. Authorization letter where applicable:

7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 \times 11 inches should be wounted on 8.5 \times 11 inch paper for submission. Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, end IV must be completed by the applicant. For applications submitted in connection with awarded registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant. Block A - Check the appropriate action for which you are submitting this form.

 $\overline{ ext{SECTION}}$ - This section must be completed, as applicable, for all registration actions.

- and the second Company/Product Mumber - Insert your Company Mumber, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Baber.
- 2. EPA Product Manager 1f known, fill in the name and PM number of the EPA Product Manager.

3. Proposed Classification - Specify the proposed classification of this product.

4. Product Name - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include: any brand name or company line designations.

5. Name and Address of Applicant - The name of the firm or person and address shown in your application is the person or Firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an arrival authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing

address of such an agent must accompany this application.

6. Expedited Review - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or exendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

" discation act as basis." <u>SECTION II</u> - This section must be completed for all applications submitted to amend the registration only of accurrently. registered product (Amendment), for a resubmission in response to an Agency Letter, for notifications to the Agency, for the submission of finel printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. Subject of submission - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of, the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by ..." Proceediatestics extended to a state of the submission. Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate pagazifiadditional space is needed.

SECTION 117 (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

 Type of Packaging - Cleck the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container

Type of Patril Container - Indicate type of container in which product will be marketed.

Location of Ket Contents - Specify the net contents of all retail containers for your product.

4. Size(s) of Cetail Contains: - Specify the net contents of all retail containers for your product.
5. Location of Use Directions: 4 Indicate the tocation of the use directions for your product.

6. Marrier'in which tabel is offixed to product - Indicate the method product tabel is attached to/retail container_posts.

a haddonly in the SECTION 1V (Contact Point) - This Section must be completed for all applications for Registration actions; i.e., New products registration, resubmission, "me-too," reregistration, etc.

1-5. Self-explanatory.

6. EPA Use Only.

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APR - 6 1994

Dr. Sheila A. Schuette Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Update Aerial Application In California) EPA Registration No. 524-445 Your Application Dated March 18, 1994

The labeling referred to above, submitted in connection with the registration under the Pederal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. A stamped copy of labeling is enclosed for your records.

Sincerely,

Robert J. Taylor
Product Manager 25
Pungicide-Herbicide Branch
Registration Division (B7505C)

SUPPLEMENTAL LABELING

READ AND FOLLOW THE ENTIRE LABEL BOOKLET FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for ROUNDUP herbicide and this

supplement.



ACCEPTED

APR - 6 1994

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. > 24-445

EPA Reg. No. 524-445

FOR AERIAL APPLICATION IN CALIFORNIA ONLY.

Keep out of reach of children.

WARNING! AVISO!

in case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

ROUNDUP® is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of the herbicide application.

See "GENERAL INFORMATION" and "MEXING, ADDITIVES and APPLICATION INSTRUC-TIONS" sections of the Roundup label booklet for essential product performance information.

See the "CROPPING SYSTEMS" of the tabel booklet for apecific recommendations on the use of this product

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS, OR FRUIT OF DESIRABLE CROPS, PLANTS, TREES, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Aerial applications of this product are allowed in the following aductions:

- In fallow end reduced tiliage systems prior to the emergence or transplanting of labeled cross.
- In cotton, prior to harvest. Refer to the ROUNDUP[®] booklet for specific pre harvest application instructions.

Do not plant subsequent crops other than those listed in the tabel booklet for this product for 30 days following application.

When applied as recommended, under the conditions described, this product controls

surrual and perenulal weeds listed in the tabel booklet

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR.

AERIAL EQUIPMENT

Use the recommended rates of this product in 3 to 15 gallions of water per acre.

Do not apply to water, to areas where surface water is present or to intertidal ereas below the mean high water mark. Do not contaminate water when disposing of equipment weahwaters.

AVOID DRIFT DO NOT APPLY WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITION WHICH WILL ALLOW DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.

Use the following guidelines when serial applications are made near crops or desirable perential vegetation after bud break and before total less drop, and/or near other desirable vegetation or annual crops.

- Do not apply within 100 feet of all desirable vegetation or crop(s).
- if wind up to 5 miles per hour is blowing toward desirable vegetation or crop(s), do not apply within 500 hundred feet of the desirable vegetation or crop(s).
- Winds blowing from 5 to 10 miles per hour loward desirable vegetation may require buffer zones in excess of 500 feet.

 Do not apply when winds are in excess of 10 miles per hour or when inversion conditions exist.

Coarse sprays are less likely to drift; therefore, do not use nozzies or nozzie configurations which disperse spray as fine spray droplets. Do not angle nozzies forward into the sinstream and do not increase nozzie pressure.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cartiforary statements and all other information and all other information appearing on the additive label.

Ensure uniform application - to avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wesh allorad, especially landing gear, after each day of expraying to remove residues of this product accumulated during expraying or form spills, PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART, LANDING GEAR IS MOST SUSCEPTIBLE. The maintenance of an organic coating (paint) which meets seprepace specification MIL-C-38413 may prevent corrosion.

Read the "LMT of tYARTALTY AND LIABIL-ITY" in the label booklet for foundup herbicide before using this product. (Those terms apply to this supplemental labeling and if those terms are not cooperate, return the product unopened at anon.

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MONSANTO COMPANY 1994
MONSANTO COMPANY 1994
AGRICULTURAL PRODUCTS
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Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

March 18, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup® Herbicide (EPA Reg. No. 524-445)

Submission of Final Printed Labels:

Supplemental Label for Aerial Application in California

Dear Sir:

Monsanto is submitting final printed labels of a Roundup® herbicide supplemental label for your files. This supplemental label, which provides instructions for aerial applications in California, was approved by the Agency on March 18, 1991. We have made the following minor changes to update the label:

- Added the Spanish signal word.
- Updated the wetlands statement.

Enclosed are five (5) copies of the label (version 21001S1-2-3/17/94).

If you have any questions regarding this submission, please contact Dr. Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D.

Manager, Regulatory Affairs

Shula Q. Jahuitte

(314) 694-7248

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Previous editions are obsolete 2004 ANY White - EPA: File Copy (original)

EPA Form 8570-1 (Rev. 12-90)

PAPERMORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate on any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503:

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:
1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];

2. Confidential Statement of Formula (EPA Form 8570-4);

Formulator's Exemption Statement (EPA Form 8570-27);

4. Five copies of draft labeling;

5. Three copies of any data submitted;

6. Authorization letter where applicable;

Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission. Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A; for which you are submitting this application. applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant. Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

- Company/Product Number Insert your Company Number, if one has been assigned by EPA. This number may have been assigned
 to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product maher.
- 2. EPA Product Manager If known, fill in the name and PM number of the EPA Product Manager.

3. Proposed Classification - Specify the proposed classification of this product.

- 4. Product Name Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
- 5. Name and Address of Applicant The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an . authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.

6. Expedited Review - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations; that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to on-identical to your product The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resulmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered. product. This section is not to be used for a new application for registration.

1. Subject of submission - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section sust be completed for all applications submitted in connection with new registration or applicable amendments.

1. Type of Packaging - Check the appropriate block if your product will be packaged in the indicated packaging types. indicate the size of the individual packets and number per retail container.

2. Type of Retail Container - Indicate type of container in which product will be marketed.

3. Location of Met Contents - Specify the net contents of all retail containers for your product.

4. Size(a) of Retail Container - Specify the net contents of all retail containers for your product.
5. Location of the Directions: Indicate the location of the use directions for your product.

- 6. Naturement in which tabel is affixed to product Indicate the method product tabel is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e. new products registration, "crimmission, "me-too," reregistration, etc.

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EGE-Form \$57(-1 (Rev. 12-90)

APR - 6.1994

Dr. Sheila A. Schuette Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005

Dear Dr.Schuette:

Subject: Roundup Herbicide (Use of Hooded Sprayers in Grain Sorghum and Corn) EPA Registration No. 524-445 Your Letters Dated January 10, 1994

This acknowledges receipt of your applications dated January 10, 1994, requesting use of hooded sprayers in grain sorghum and corn. These requests have been routed to the proper discipline for scientific review and evaluation. Further action will await completion of scientific review and evaluation.

Sincerely,

1×m

Robert J. Taylor Product Manager 25 Fungicide-Herbicide Branch Registration Division (H7505C)

284°

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

January 10, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor Product Manager (25)

Subject:

Roundup® Herbicide (EPA Reg. No. 524-445)

Supplemental Label for Use with Hooded Sprayers in Grain Sorghum

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of a supplemental label for Roundup herbicide for use with hooded sprayers in grain sorghum (milo). Monsanto believes that the proposed label is supported by the data contained in MRID 00108203, which provides residue data for spot treatments in grain sorghum. We discussed this proposed use with Mr. Robert S. Quick of EPA at a meeting on July 28, 1993. Our rationale is discussed in detail below.

Spot Treatment Use in Grain Sorghum (Milo)

In July, 1978, Monsanto submitted residue data for use of glyphosate as a spot treatment in grain sorghum and several other crops (MRID 00108203). In this study, a 10' x 10' area was treated as a directed postemergent spray at a rate of 4.5 lb a.e./A (equivalent to 6 qt/A of Roundup) and samples were taken at various distances from the treated area (0, 10, 25 and 100'). The 0' sampling point was at the border of the spot treatment application, in the area where the grain sorghum

plants survived and could be harvested. No detectable residues of glyphosate or its metabolite were found in the sorghum grain heads, even at the 0' sampling point. Residues of glyphosate at 0.07 ppm were found in both the sorghum silage and fodder samples at the 0' sampling point, but not at any of the more distant sampling points. No detectable residues of the metabolite were found in any of the silage or fodder samples. Based on these data and the existing 0.1 ppm tolerance on grain crops, EPA approved this spot treatment use on July 10, 1979.

Hooded Sprayers

Hooded sprayers are a recent innovation in shielded sprayer technology that have been commercially available for only the past few years. Unlike traditional shielded sprayers, these hooded sprayers are completely enclosed on all four sides and the top. They are mounted on the tractor such that the bottom of the hood is in very close contact with the ground, and herbicide applications are made to the ground between the crop rows. The spray nozzles for applying the herbicide are located on the inside of the hood, so that only the weeds in between the crop rows are contacted with the spray; the crop itself is extremely well shielded from the herbicide.

Proposed Use of Hooded Sprayers in Grain Sorghum (Milo)

Monsanto believes that the design of the hooded sprayers will result in equal or lesser contact of the herbicide spray with the grain sorghum than the approved spot treatment use. The samples taken from the 0' sampling point provide a good representation of the maximum residue level that would be expected at the point where the hooded sprayer contacts the crop row. In addition, the hooded sprayer application will occur earlier than the spot treatment application -- approximately 4-6 weeks after crop emergence. We believe, therefore, that the treated grain sorghum will not contain detectable glyphosate residues and that the current 0.1 ppm tolerance for grain will not be exceeded. A prohibition against feeding or grazing treated sorghum forage and fodder has also been included on the label.

Monsanto requests that the Agency approve and stamp the enclosed supplemental label. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed. If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D.

Manager, Regulatory Affairs

Shula a. Schuette

(314) 694-7248

cc: R.P. Schneider L.L. Gingerich

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

January 10, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor Product Manager (25)

Subject:

Roundup® Herbicide (EPA Reg. No. 524-445)

Supplemental Label for Use with Hooded Sprayers in Corn

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of a supplemental label for Roundup herbicide for use with hooded sprayers in corn. Monsanto believes that the proposed label is supported by the data contained in MRID 00108203, which provides residue data for spot treatments in corn. We discussed this proposed use with Mr. Robert S. Quick of EPA at a meeting on July 28, 1993. Our rationale is discussed in detail below.

Spot Treatment Use in Corn

In July, 1978, Monsanto submitted residue data for use of glyphosate as a spot treatment in corn and several other crops (MRID 00108203). In this study, a 10' x 10' area was treated as a directed postemergent spray at a rate of 4.5 lb a.e./A (equivalent to 6 qt/A of Roundup) and samples were taken at various distances from the treated area (0, 10, 25 and 100'). The 0' sampling point was at the border of the spot treatment application, in the area where corn plants survived and

could be harvested. No detectable residues of glyphosate or its metabolite were found in any of the corn grain or stover samples even at the 0' sampling point. Based on these data and the existing 0.1 ppm tolerance on grain crops, EPA approved this spot treatment use on July 10, 1979.

Hooded Sprayers

Hooded sprayers are a recent innovation in shielded sprayer technology that have been commercially available for only the past few years. Unlike traditional shielded sprayers, these hooded sprayers are completely enclosed on all four sides and the top. They are mounted on the tractor such that the bottom of the hood is in very close contact with the ground, and herbicide applications are made to the ground between the crop rows. The spray nozzles for applying the herbicide are located on the inside of the hood, so that only the weeds in between the crop rows are contacted with the spray; the crop itself is extremely well shielded from the herbicide.

Proposed Use of Hooded Sprayers in Corn

Monsanto believes that the design of the hooded sprayers will result in equal or lesser contact of the herbicide spray with the corn than the approved spot treatment use. The samples taken from the 0' sampling point provide a good representation of the maximum residue level that would be expected at the point where the hooded sprayer contacts the crop row. In addition, the hooded sprayer application will occur earlier than the spot treatment application -- approximately 4-6 weeks after crop emergence. We have also reduced the application rate from 6 qt/A to a maximum of 3 qt/A. We believe, therefore, that the treated corn will not contain detectable glyphosate residues and that the current 0.1 ppm tolerance for grain will not be exceeded. A prohibition against feeding or grazing treated corn forage and fodder has also been included on the label.

Monsanto requests that the Agency approve and stamp the enclosed supplemental label. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed. If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D.

Manager, Regulatory Affairs

Shila a. Schuette

(314) 694-7248

cc: R.P. Schneider L.L. Gingerich

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

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August 10, 1993

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Memorandum of Understanding:

July 28, 1993 Meeting on Hooded Sprayers

Dear Sir:

On Wednesday, July 28, 1993, representatives from Monsanto and EPA met to discuss the use of hooded sprayers in several crops and to determine whether existing residue data could be used to support these uses. The following is a summary of what transpired during the meeting.

In attendance were Robert Taylor and Robert Quick of EPA, and Lyle Gingerich, Sheila Schuette and Russ Schneider of Monsanto. At the start of the meeting, Monsanto showed photographs of the hooded sprayers themselves and how they are currently being used in cotton and soybeans. The discussion then turned to what data would be required to obtain a label for the use of hooded sprayers in other crops.

Sugarcane:

After some discussion about the methodology of the studies, EPA agreed that the existing interline spot-treatment data for sugarcane would likely support the use of hooded sprayers in this crop. Monsanto will prepare a label and make a submission in the near future.

Corn / Grain Sorghum (Milo):

It is possible that existing spot treatment data can be used to support the use of hooded sprayers in corn and milo. Since details concerning these studies were not available at the meeting, Monsanto will review the data; if these data are pertinent, label submissions will be made.

EPA did agree that preharvest tolerances for corn and milo, which Monsanto hopes to obtain over the next few years, would cover the relatively low residue levels expected from the hooded sprayer application.

Representative Crops:

To obtain a label for general use of hooded sprayers in all crops, residue studies would need to be conducted. These studies could be performed on representative crops from several diverse crop groupings (e.g., cereal grains, fruiting vegetables, root and tuber vegetables). It was agreed that these trials would not need to be conducted at an extensive number of locations. If the residue levels were very low or non-detectable and were within existing tolerances, the use should be approved. If residues were higher than existing tolerances, a more extensive residue program would then be required. Monsanto would meet with EPA to develop the residue program before initiating any studies.

Air Sampling:

The EPA would prefer to have actual crop residue data, rather than artificial air sampling tests.

Monsanto appreciates having the opportunity to meet with you to discuss these issues. If you have any additions or corrections to this memorandum, please contact Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D.

Shila Q. Seluette

Registration Manager

(314) 694-7248

cc: R. S. Quick / EPA R.P. Schneider L.L. Gingerich

APR - 6 1994

Dr. Sheila A. Schuette Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005

Dear Dr.Schuette:

Subject: Glyphosate/Removal of 30-Day Rotational Crop Restriction EPA Registration No. 524-445 Your Letter Dated August 16, 1993

This acknowledges receipt of your letter dated August 16, 1993 requesting removal of the 30-day rotational crop restriction from glyphosate labels. This request has been routed to the proper discipline for scientific review and evaluation. Further action will await completion of scientific review and evaluation.

Sincerely,

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alon.

Robert J. Taylor Product Manager 25 Fungicide-Herbicide Branch Registration Division (H7505C)

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

2/4/94

August 16, 1993

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor

Product Manager (25)

Subject: Glyphosate/Removal of 30-Day Rotational Crop Restriction

Dear Sir:

Monsanto would like to remove the 30-day rotational crop restriction that is currently required on our glyphosate product labels. The statement reads "Do not plant subsequent crops other than those on the label for 30 days following application." We believe that this statement should not be required and have prepared the following summary for your consideration.

Background

On March 31, 1987, the Agency issued PR Notice 87-3 (copy attached), which listed several pesticides for the which the rotational crop restriction statement could be deleted. Glyphosate was among this group. The criteria for inclusion in this group were (1) the rotational crop restriction was imposed solely as an interim measure until rotational crop data were developed, (2) the 165-1 confined rotational crop study had been required of the registrant, and (3) the registrant had agreed to conduct the study.

Monsanto submitted the required confined rotational crop study in June, 1990 (MRID 41543201-2). An addendum to the report was submitted in June, 1992 (MRID 42372504), and this study was accepted by the Agency on October 22, 1992.

On December 4, 1990, Monsanto submitted a Roundup® herbicide label amendment requesting a deletion of the rotational crop restriction. This request was rejected by EFGWB in February, 1992 (copy attached) because "total residues in the 30 day after treatment subplot ranged from 0.188 ppm to 0.037 ppm."

Rationale

Monsanto requests that the Agency reconsider the removal of the rotational crop restriction for the following reasons:

- 1. Although the total radioactive residue in the 30 day after treatment subplot ranged from 0.188 to 0.037 ppm, the levels of the actual residues of concern were much lower. The combined residues of parent glyphosate and its metabolite AMPA ranged from 0.052 ppm to < 0.001 ppm. The difference in these values is due to re-incorporation of ¹⁴C into natural plant constituents such as glucose and fructose. The ¹⁴C is released as ¹⁴CO₂ during the degradation of glyphosate by soil microorganisms (MRID 41742901) and taken up by the plants.
- 2. Tolerances for glyphosate have been established for all of the crop groups except the herb and spices group at a minimum of 0.1 ppm. Therefore, except for crops in the herb and spices group, any residues of glyphosate and AMPA in any rotational crop that is planted following herbicide application will already be covered by an existing tolerance.
- 3. As mentioned above, tolerances for glyphosate are already established for the all of the major crop groupings and a number of crops are currently listed on our labels without a rotational crop restriction. Therefore, the only crops that would be affected by the requested action would be minor crops that are not included in any crop group (e.g., canola), and thus the number of treated acres would be relatively small. Furthermore, this action would save minor crop groups such as IR-4 from using their limited resources in obtaining approvals for pre-plant uses of glyphosate on these minor crops.

We believe that the rotational crop and metabolism data that have been submitted demonstrate that negligible, if any, residues would result from removing the 30 day rotational crop restriction from the glyphosate product labels. In addition, the residues would be adequately covered by existing tolerances. We therefore request your approval to delete this statement from the glyphosate product labels.

If you have any questions regarding this request, please contact Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D. Registration Manager

Shila a. Schuette

(314) 694-7248

cc: R.P. Schneider L.L. Gingerich J.A. Mills Dr. Sheila A. Schuette Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005

Dear Dr.Schuette:

Subject: Memorandum of Understanding

Glyphosate Tolerance Expression Meeting

You Letter Dated Pebruary 23, 1994

This acknowledges receipt of your letter dated February 23, 1994 transmitting a Memoranadum of Understanding for the meeting held February 10, 1994. This memorandum has been routed to the proper disciplines for comment. Further action will await completion of scientific review and evaluation.

Sincerely,

UKUD

Robert J. Taylor Product Manager 25 Pungicide-Herbicide Branch Registration Division (H7505C)

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005

Routed 3/4/94

February 23, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Glyphosate Tolerance Expression Meeting

Memorandum of Understanding

Dear Sir:

On February 10, Monsanto met with the EPA to discuss the Agency's proposal to remove the metabolite aminomethylphosphonic acid (AMPA) from the glyphosate tolerance expression. Attending for EPA were Wesley Allen, William Dykstra, Rick Loranger, Michael Metzger, Randy Perfetti, Mary Peters, and Robert Quick. Attending for Monsanto were William Goure, Charles Hastings, Russ Schneider and me.

Monsanto requested the meeting to ensure that the Agency was aware that we are developing crops that are tolerant to glyphosate and that metabolism and residue studies on these crops demonstrate that AMPA will be a greater component of the total residue. In fact, in some crops, AMPA will be the major residue. Monsanto presented a summary of the metabolism and residue data we have developed for glyphosate-tolerant soybeans, which is the first crop we plan to commercialize in the US. Monsanto also presented an overview of the toxicological studies that have been conducted on AMPA. Copies of the overheads used in the presentation are attached for your files. Monsanto will submit the full studies in the next few months to support our request to label Roundup® herbicide for use over the top of glyphosate-tolerant soybeans.

During the presentation, there were several questions for clarification and general interest about this new technology. During the discussion, these specific points were addressed:

- The Agency confirmed that if AMPA were removed from the glyphosate tolerance expression, then AMPA residues would not be included in the tolerance value. For example, if there is an existing glyphosate tolerance for a crop at 0.1 ppm and a new use in that crop were to result in glyphosate residue levels below 0.1 pmm and AMPA residues above 0.1 ppm, then a new tolerance would not be required. The Agency confirmed that such a commodity would not contain illegal residues and therefore could not be seized by FDA.
- Monsanto plans to request a feeding / grazing restriction on soybean forage.
 The Agency noted that there would be a notice for public comment on these
 types of restrictions later this year, but that Monsanto could request the
 restriction in our submission. It was determined that placing the restriction
 on the seed bag rather than the herbicide label would likely not be enforceable.
- Monsanto will continue to analyze residue samples for both glyphosate and AMPA residues since the same analytical method is used for both. The data on AMPA would then be available if it were needed for risk assessment.
- Dr. Schneider noted that glyphosate-tolerant soybeans will grown be at a demonstration plot near Washington, D.C. this summer and invited anyone who was interested in this new technology to visit the site; Monsanto will arrange the tours.

In summary, the Agency concluded that the new information we presented on glyphosate-tolerant crops would not change their recommendation to remove AMPA from the tolerance expression, as long as there were no unexpected results in the final reports. Monsanto agrees with the Agency's decision to remove AMPA from the glyphosate tolerance expression and requests that this decision be formalized by granting an exemption from tolerance for AMPA.

If you have any questions, please contact Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D.

Manager Regulatory Affairs

Shula a. Schuette

(314) 694-7248

cc: R.P. Schneider

notificultin and

Monsanto

Monsanto Company Suite 1100 700 14th Street, N.W. Washington, D.C. 20005.

January 18, 1994

Office of Pesticide Programs - H7504C Document Processing Desk U.S. Environmental Protection Agency Room 226A, Crystal Mall #2 1921 Jefferson Davis Highway Arlington, Virginia 22202

Attention:

Mr. Robert J. Taylor

Product Manager (25)

Subject:

Roundup[®] Herbicide (EPA Reg. No. 524-445)

Notification: Supplemental Label for Preharvest Applications

to Wheat in California

Dear Sir:

Monsanto is notifying the Agency of a supplemental label which allows the use of Roundup herbicide preharvest to wheat. This label will be distributed in California only. This label is identical to the label that was approved by the Agency on June 17, 1993 and distributed to the rest of the U.S. except that the recommendations for control of specific weeds have been removed. This change has been made because the recommended tank mixture with 2,4-D is not allowed in the state of California.

Three copies of the label are enclosed for your files.

If you have any questions regarding this notification, please contact Dr. Russ Schneider or me.

Sincerely,

Sheila A. Schuette, Ph.D. Manager, Regulatory Affairs

Shila a. Schuette

(314) 694-7248

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Please read instructions on reverse before completing form	7. Earm too	ormand - CMR No. 2070-005	20 Agercual cuaire 41 20 02
(A) United States Environment Office of Pesticide Pro Washington, D	ntal Protection Agency ograms (H7505C)	Registration Amendment X Other	OPP Identifier Number
	ction I		1
	2. EPA Product Ma	nager 3	Proposed Classification
Company/Product Number 524~445	Robert J. 1	*	. roposco siasamoassii
4. Company/Product (Name) Roundup® Herbicide	PM# 25		None Restricted
5. Name and Address of Applicant (Include ZIP Code)			th FIFRA Section 3(c)(3)
Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, D.C. 20005	to:	is similar or identical in o	composition and labeling
Check if this is a new address	Product Name		
Sec	tion i i	 	
Amendment - Explain below		labels in response to r dated	
Resubmission in response to Agency letter dated	-Me Too* App	ofication.	•
X Notification - Explain below.	Other - expla	in below.	
Notification: Supplemental l to wheat in Ca	abel for preharves lifornia.	t applications	
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Material This Product Will Be Packaged In:		· · · · · · · · · · · · · · · · · · ·	No. of the contracts
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Contact Point (Complete items directly below for identification)			his,application) MOTTING
Name Dr. Russell P. Schneider	^{Tido} Agricultural Re Director	gulation Telepho	one No. (Include Area Code)) 783-22460
Certification I certify that the statements I have made on this form and all a I acknowledge that any knowingly false or misleading statem both under applicable law.	ittachments thereto are true, a	accurate and complete.	6. Oate Application -
	3. Title		一一一世界,學院是每
Shula O Selvelo	Manager, Regulato	ry Affairs	799

EPA Form 8570-1 (Rev. 12-90) Previous editions are obsolete.

Sheila A. Schuette, Ph.D.

5. Date

PAPERMORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PN-223, U.S. Environmental Protection Agency, 401 M Street, SM, Mashington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Mashington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not excepted by 40 CFR 152.81 (b) (4)];

2. Confidential Statement of Formula (EPA Form 8570-4);

3. Formulator's Exemption Statement (EPA Form 8570-27);

4. Five copies of draft labeling:

5. Three copies of any data submitted;

6. Authorization letter where applicable;

7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in much a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission. Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

- Company/Product Number Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
- 2. EPA Product Manager If known, fill in the name and PM number of the EPA Product Manager.

3. Proposed Classification - Specify the proposed classification of this product.

- 4. Product Name Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
- 5. Name and Address of Applicant The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.

6. Expedited Review - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendmentate existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to smend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

Subject of submission - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief
explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the
Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach
a separate page if additional space is needed.

SECTION ILLE (Packaging and Container Information) This Section must be completed for all applications submitted in connection with new registration or applicable anendmental.

Type of Perturing - Check the appropriate block if your product will be packaged in the indicated packaging types.
 Indicate the size of the individual packets and number per retail container.

2. Type of Retail Contains - Indicate type of container in which product will be marketed.

- 3. Location of Bet Contents Specify the net contents of all retail containers for your product.
- 4. Size(s) of Rutail Conceiner Specify the net contents of all retail containers for your product.

5. Location of Use Directions - Indicate the location of the use directions for your product.

6. Marrier in Which label is affixed to product - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "me-too," reregistration, etc.

Self-exploratory.
 EPA Use Only.

Yetow - Applicant copy

J. Sans. 18 1979

EPA Form 8570-1 (Ray, 12-90) Previous collons are chapter (12-90) White EPA Fig. Copy. (original)

\$EPA

United States Environmental Protection Agency Washington, DC 20460

tification with Respect to Citation of Data

Form Approved
OMB No. 2070-0050
Approval Expires 11-30-93

Applicants	Name and Address		EPA File Symbol/Regis	
Mons	anto Company		524~	445
700	14th Street, N.W., Sui ington, D.C. 20005	te 1100	Product Name Roun	dup® Herbicide
wasii	ingent, D.C. 20005		Date of Application Janu	ary 18, 1994
zi	IOTE: If your product is a labeled for the same uses, you remption Statement (EPA For	do not need to submit		d product that you purchase, and t submit the Formulator's
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	I have obtained the writte	en permission of the o	riginal data submitter	to cite that study
	I certify that, for each study ci study:	ted in support of this a	application for registr	ation that is not an exclusive use
	a. ka I am the original data	submitter*; or		
_	I have obtained the w	ritten permission of the	e original data submi	tter to cite that study*; or
·	3(c)(1)(D) and 3(c)(2) and (b) Commence ne	ffered to: (a) Pay com (D) of the Federal Ins gotiations to determine and the amount and t	pensation for those o ecticide, Fungicide ar which data are subj	I have cited to support this data in accordance with section and Rodenticide Act (FIFRA); ect to the compensation in due, if any. The companies I
		-all method or cite-all		r all active ingredients contained we Method*). (Also, sign the
	Those companies	that have submitted th	e studies which I hav	e cited (Selective method*).
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7	General Offer to Pa	y: I hereby offer and ag	ree to pay compensati	on to other
	persons, with regard (to the approval of this ap	oplication, to the extent	required S
ignature		Name and Title		Date
		I .		1

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.

ROUNDUP® Herbicide by Monsanto

EPA Reg. No. 524-445

FOR PREHARVEST APPLICATIONS IN WHEAT IN CALIFORNIA ONLY

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

ORoundup is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup herbicide for essential product performance information.

RECOMMENDATIONS

This product controls annual and perennial weeds listed on this label prior to the harvest of wheat. Make applications after the hard-douogh stage of grain (30% or less grain moisture) and at least 7 days prior to harvest.

This product may be applied using either aerial or ground spray equipment. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for instructions for ground and aerial applications.

DO NOT APPLY MORE THAN 1 QUART PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS.

For specific rates of application and instructions for control of other annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

NOTE: It is not recommended that wheat grown for seed be treated because a reduction in germination or vigor may occur.

Read the "Limit of Warranty and Liability" in the label booklet for Roundup herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

©Monsanto Company 1994

MAP

MONSANTO COMPANY AGRICULTURAL PRODUCTS ST. LOUIS, MISSOURI 63167

SUPPLEMENTAL LABELING

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ROUNDUP®
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ROUNDUP®
Herbicide by Monsanto

EPA Reg. No. 524-445

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DO NOT APPLY MORE THAN 1 QUART PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS.

For specific rates of application and instructions for control of other annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

NOTE: It is not recommended that wheat grown for seed be treated because a reduction in germination or vigor may occur.

Read the "Limit of Warranty and Liability" in the label booklet for Roundup Yerbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

@Monsanto Company 1994

MΛP

MONSANTO COMPANY AGRICULTURAL PRODUCTS ST. LOUIS, MISSOURI .63167



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C. 20460

JAN I 1 1994

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

Dr. Russell P. Schneider MONSANTO CO.

Agent for: MONSANTO AGRICULTURAL CO.

700 14th St., N.W. - Suite 1100

Washington, D.C. 20005

Subject:

Label Amendment Submission of 07/22/93 in Response to PR Notice 93-7

EPA Reg. No. 524-445

ROUNDUP HERBICIDE.

Dear Registrant:

The labeling cited above and submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is accepted. A copy of your proposed labeling stamped "ACCEPTED WITH COMMENTS" is enclosed.

WHAT THIS ACCEPTANCE MEANS:

Based on your certification, the Agency has accepted the labeling changes that are necessary to comply with the Worker Protection Standard (WPS) labeling requirements of 40 CFR part 156, subpart K, described in PR Notices 93-7 and 93-11. Any other labeling changes submitted in connection with this amendment application but not directly related to compliance with the WPS have not been reviewed or accepted by the Agency. If you wish to make such changes, you must submit a separate amendment application proposing them. If your product is currently suspended, the acceptance of this labeling amendment does not affect the suspension in any way.

WHAT YOU NEED TO DO NEXT:

Send EPA one (1) copy of the final printed labeling:

- BEFORE selling or distributing any product bearing the final printed labeling
 AND
- WITHIN one year from date of this acceptance.



Submit the final printed labeling via the U.S. Postal Service to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs (7505C)
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460-0001

Hand or courier deliveries of final printed labeling may be made to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs
Room 266A, Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202

Sincerely,

Tim Foriphins, Deputy Chief Registration Support Branch Registration Division (7505W)

Attachment

Roundup (R) Herbicide by Monsanto

Complete Directions for Use

EPA Reg. No. 524-445

ACCEPTED with COMMENTS

JAN | 4 | 1994

Umler the Federal Insecticide, Fundicides and Rodenticide Act he mainted for the pesticide

Paristrud under BPA Reg. No.

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

(R) Roundup is a registered trademark of Monsanto Company.

1992-X A-000.01

Read each of these sections of this label for essential product performance information.

USE THESE CONVENIENT SECTION MARKERS.

GENERAL INFORMATION

MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS

WEEDS CONTROLLED

NONCROP USES

CROPPING SYSTEMS

MINIMUM TILLAGE

TREE AND VINE CROPS

Read the entire label before using this product.

Use only according to label instructions.

Read ''LIMIT OF WARRANTY AND LIABILITY'' before buying or using. If terms are not acceptable, return at once unopened.

REFORMULATION IS PROHIBITED. SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

LIMIT OF WARRANTY AND LIABILITY

1

416

(Not applicable to consumer applications applied by the homeowner for noncommercial purposes as permitted by the supplemental labeling for 1-quart containers.)

This Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet (''Directions'') when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

Buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

(INDEX PAGES)

PRECAUTIONARY STATEMENTS

And the second of the time of the second

Hazards to Humans and Domestic Animals

Keep out of reach of children.

WARNING! AVISOR

Si usted no entiende la etiqueta busque a alguien para que se la explique a usted en detaile. (If you do not understand the label, find someone to explain it to you in detail.)

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY. HARMFUL IF SWALLOWED OR INHALED.

Do not get in eyes or on clothing.

Wear goggles or face shield.

Avoid breathing vapor or spray mist.

Wash-thoroughly with soap and water after handling.

Remove contaminated clothing and wash before reuse.

Personal Protective Equipment:

Applicators and other handlers must wear long-sleeved shirt and long pants, shoes plus socks, and protective eyewear. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product s, concentrate. Do not reuse them. Follow manufacturer s instructions for washables cleaning/maintaining PPE; If no such instructions for washables use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, for aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170 240 (d)] (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS

User Safety Recommendations

Users/should:

Wash hands before eating, drinking, thewing gum, using tobaccoor using the toilet.

 Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing

FIRST AID: IF IN EYES, immediately hold eyelids open and flush with plenty of water for at least 15 minutes. Get medical attention.

> IF INHALED, Remove individual to fresh air. breathing, give artificial respiration, preferably mouthto-mouth. Get medical attention.

> IF SWALLOWED, This product will cause gastrointestinal tract irritation. Immediately dilute by swallowing water or milk. Get medical attention.

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions

of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

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ACTIVE INGREDIENT:
*Glyphosate, N-(phosphonomethyl)
glycine, in the form of its
diverse, in the form of its
41 00
isopropylamine salt41.0%
INERT INGREDIENTS:
INDM: INGREDIENTS
100.00
100.04

*Contains 480 grams per litre or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per litre or 3 pounds per U.S. gallon of the acid, glyphosate.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. For any requirements specific to your State or Tribe consult the agency responsible for pesticide regulations.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR part 170 This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides ... It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box onlyapply to uses of this product that are covered by the Workers Protection Ständard.

Do not apply this product in a way that will contact workers or other persons either directly or through drift. Only protected handlers may be in the area during application

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is coveralls waterproof gloves shoes plus socks, and protective eyewear.

with Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms; forests, nurseries or greenhouses.

Keep people and pets off treated areas until spray solution has

Storage and Disposal

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

See container label for STORAGE AND DISPOSAL instructions.

GENERAL INFORMATION

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT EXCEPT

UNDER CONDITIONS AS SPECIFIED WITHIN THIS LABEL.

This product, a water soluble liquid, mixes readily with water to be applied as a foliar spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field-type sprayers after dilution and thorough mixing with water in accordance with label instructions.

This product moves through the plant from the point of foliage

contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds may not occur for 7 days or more. Extremely cool or cloudy weather following treatment may slow activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of aboveground growth and deterioration of underground plant parts.

Unless otherwise specified on this label, delay application until vegetation has emerged and reached the stages described for control of such vegetation under the ''WEEDS CONTROLLED'' section of this label. Unemerged plants arising from unattached underground rhizomes or root stocks of perennials will not be affected by the herbicide and will continue to grow. For this reason, best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per acre within the recommended range when (1) weed growth is heavy or dense, or (2) weeds are growing in an undisturbed (noncultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed, or cut, and have not been allowed to regrow to the recommended stage for treatment.

Rainfall or irrigation occurring within 6 hours after application may reduce effectiveness. Heavy rainfall or irrigation within 2 hours after application may wash the chemical off the foliage and a repeat treatment may be required.

This product does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly recommended in this labeling. Mixing this product with herbicides or other materials not recommended on this label may result in reduced performance.

For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

Keep people and pets off treated areas until opray solution has dried.

DOMESTIC ANIMALS: This product is considered to be relatively nontoxic to dogs and other domestic animals; however, ingestion of this product or large amounts of freshly sprayed vegetation may result in temporary gastrointestinal irritation (vomiting, diarrhea, colic, etc.). If such symptoms are observed, provide the animal with plenty of fluids to prevent dehydration. Call a veterinarian if symptoms persist for more than 24 hours.

ATTENTION

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of injury occurring from the use of this product is greatest when winds are gusty or in excess of 5 miles per hour or when other conditions, including lesser wind velocities, will allow spray drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.

NOTE: Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES. DO NOT APPLY WHEN WIND OR OTHER CONDITIONS FAVOR DRIFT. HAND-GUN APPLICATIONS SHOULD BE PROPERLY DIRECTED TO AVOID SPRAYING DESIRABLE PLANTS. NOTE: REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

MIXING

This product mixes readily with water. Mix spray solutions of this product as follows: Fill the mixing or spray tank with the required amount of water. Add the recommended amount of this product (see the ''DIRECTIONS FOR USE'' and ''WEEDS CONTROLLED'' sections of this label) near the end of the filling process and mix well. Remove hose from tank immediately after filling to avoid siphoning back into the carrier source. During mixing and application,

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foaming of the spray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, terminate by-pass and return lines at the bottom of the tank and, if needed, use an approved anti-foam or defoaming agent.

TANK MIXTURES

Always predetermine the compatibility of labeled tank mixtures of this product with water carrier by mixing small proportional quantities in advance.

Mix labeled tank mixtures of this product with water as follows:

- Place a 20 to 35 mesh screen or wetting basket over filling port.
- 2. Through the screen, fill the spray tank one-half full with water and start agitation.
- 3. If a wettable powder is used, make a slurry with the water carrier, and add it SLOWLY through the screen into the tank. Continue agitation.

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- 4. If a flowable formulation is used, premix one part flowable with one part water. Add diluted mixture SLOWLY through the screen into the tank. Continue agitation.
- 5. If an emulsifiable concentrate formulation is used, premix one part emulsifiable concentrate with two parts water. Add diluted mixture slowly through the screen into the tank. Continue agitation.
- Continue filling the sprayer tank with water and add the required amount of this product near the end of the filling process.
- Where nonionic surfactant is recommended, add this to the spray tank before completing the filling process.
- 8. Add individual formulations to the spray tank as follows: wettable powder, flowable, emulsifiable concentrate, drift control additive, water soluble liquid followed by surfactant.

Maintain good agitation at all times until the contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed.

Keep by-pass line on or near bottom of tank to minimize foaming. Screen size in nozzle or line strainers should be no finer than 50 mesh. Carefully select proper nozzle to avoid spraying a fine mist. For best results with conventional ground application equipment,

use flat fan nozzles.

Clean sprayer and parts immediately after using this product by thoroughly flushing with water.

ADDITIVES

SURFACTANTS

Nonionic surfactants which are labeled for use with herbicides may be used. Do not reduce rates of this product when adding surfactant. When adding additional surfactant, use 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration (4 quarts per 100 gallons of spray solution) for those surfactants containing less than 70 percent active ingredient. Read and carefully observe surfactant cautionary statements and other information appearing on the surfactant label.

AMMONIUM SULFATE

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product, and this product plus 2,4-D, Banvel^m or residual herbicide tank mixtures on annual and perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Low-quality ammonium sulfate may contain material that will not readily dissolve, which could result in nozzle tip plugging. To determine quality, perform a jar test by adding 1/3 cup of ammonium sulfate to 1 gallon of water and agitate for 1 minute. If undissolved sediment is observed, predissolve the ammonium sulfate in water and filter prior to addition to the spray tank. If ammonium sulfate is added directly to the spray tank, add slowly with agitation. Adding too quickly may clog outlet line. Ensure that ammonium sulfate is completely dissolved in the spray tank before adding herbicides or surfactant. Thoroughly rinse the spray system with clean water after use to reduce corrosion.

NOTE: The use of ammonium sulfate as an additive does not preclude the need for additional surfactant. Do not use herbicide rates lower than recommended in this label.

COLORANTS OR DYES

Agriculturally-approved colorants or marking dyes may be added to this product. Colorants or dyes used in spray solutions of this

Electrical respect

product may reduce performance, especially at lower rates or dilutions. Use colorants or dyes according to the manufacturer's recommendations.

APPLICATION EQUIPMENT AND TECHNIQUES

Do not apply this product through any type of irrigation system.

This product may be applied with the following application equipment:

Aerial -- Fixed Wing and Helicopter

Broadcast Spray

Controlled Droplet Applicator (CDA) -- Hand-held or boom-mounted applicators which produce a spray consisting of a narrow range of droplet sizes.

Hand-Held and High-Volume Spray Equipment -- Knapsack and backpack sprayers, pump-up pressure sprayers, handguns, handwands, mistblowers, lances and other hand-held and motorized spray equipment used to direct the spray onto weed foliage.

Selective equipment -- Recirculating sprayers, shielded sprayers and wiper applicators.

See the appropriate part of this section for specific instructions and rates of application.

AERIAL EQUIPMENT

Use the recommended rates of this herbicide in 3 to 15 gallons of water per acre unless otherwise specified on this label. See the ''WEEDS CONTROLLED'' section of this label for specific rates. Unless otherwise specified, do not exceed 1 quart per acre. Aerial applications of this product may be made in annual cropping conventional tillage systems, fallow and reduced tillage systems, preharvest, silvicultural sites and rights-of-way. Refer to the individual use area sections of this label for recommended volumes and application rates. FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

Avoid direct application to any body of water.

AVOID DRIFT--DO NOT APPLY DURING INVERSION CONDITIONS, WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITION WHICH FAVORS DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Ensure uniform application -- To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE. The maintenance of an organic coating (paint), which meets aerospace specification MIL-C-38413, may prevent corrosion.

This product plus $Oust^{24}$, Banvel or 2,4-D tank mixtures may not be applied by air in California.

BROADCAST EQUIPMENT

For control of annual or perennial weeds listed on this label using broadcast equipment — Use the recommended rates of this product in 3 to 40 gallons of water per acre as a broadcast spray unless otherwise specified on this label. See the ''WEEDS CONTROLLED'' section of this label for specific rates. As density of weeds increases, spray volume should be increased within the recommended range to ensure complete coverage. Carefully select proper nozzle to avoid spraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

CONTROLLED DROPLET APPLICATION (CDA)

The rate of this product applied per acre by vehicle-mounted CDA equipment must not be less than the amount recommended in this

label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 3 to 15 gallons of water per acre.

For the control of labeled annual weeds with hand-held CDA units, apply a 20 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 1.5 MPH (1 quart per acre). For the control of labeled perennial weeds, apply a 20 to 40 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 0.75 MPH (2 to 4 quarts per acre).

Controlled droplet application equipment produces a spray pattern which is not easily visible. Extreme care must be exercised to avoid spray or drift contacting the foliage or any other green tissue of desirable vegetation, as damage or destruction may result.

HAND-HELD and HIGH-VOLUME EQUIPMENT

Use coarse sprays only.

Mix this product in clean water and apply to foliage of vegetation to be controlled. For applications made on a spray-to-wet basis, spray coverage should be uniform and complete. Do not spray to the point of runoff.

For control of annual weeds listed on this label, apply a 0.5 percent solution of this product plus nonionic surfactant to weeds less than 6 inches in height or runner length. Apply prior to seedhead formation in grass or bud formation in broadleaf weeds. Allow three or more days before tillage or mowing.

For annual weeds over 6 inches tall, or when not using additional surfactant, or unless otherwise specified, use a 1 percent solution. For best results, use a 2 percent solution on harder-to-control perennials, such as bermudagrass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

When using application methods which result in less than complete coverage, use a 5 percent solution for annual and perennial weeds and a 5 to 10 percent solution for woody brush and trees.

Prepare the desired volume of spray solution by mixing the amount of this product in water as shown in the following table:

Spray Solution

Amount of Roundup

Desired Volume	1/2%	1%	1 1/2%	2%	5%	10%
l Gal 25 Gal 100 Gal	2/3 oz 1 pt 2 qt	l-1/3 oz l qt l gal	2 oz 1 1/2 qt 1 1/2 gal		6-1/2 oz 5 qt 5 gal	13 oz 10 qt 10 gal
2 tablespo	ons = 1 f	luid ounce				

For use in knapsack sprayers, it is suggested that the recommended amount of this product be mixed with water in a larger container. Fill sprayer with the mixed solution.

SELECTIVE EQUIPMENT

This product may be applied through a recirculating spray system, a shielded applicator, or a wiper applicator after dilution and thorough mixing with water to listed weeds growing in any noncrop site specified on this label and only when specifically recommended in cropping systems.

A recirculating spray system directs the spray solution onto weeds growing above desirable vegetation, while spray solution not intercepted by weeds is collected and returned to the spray tank for reuse.

A shielded applicator directs the herbicide solution onto weeds, while shielding desirable vegetation from the herbicide.

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution.

AVOID CONTACT WITH DESIRABLE VEGETATION.

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Contact of the herbicide solution with the desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that the lowest spray stream or wiper contact point is at least 2 inches above the desirable vegetation. Droplets, mist, foam, or splatter of the herbicide solution settling on desirable vegetation may result in discoloration, stunting, or destruction.

Applications made above the crops should be made when the weeds are a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the

herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatment may be necessary.

SHIELDED APPLICATORS

When applied as directed under conditions described for shielded applicators, this product will control those weeds listed in the ''WEEDS CONTROLLED'' section of this label.

Use the following equation to convert from a broadcast rate per acre to a band rate per acre.

Band width in inches	Х	Herbicide Broadcast	===	Herbicide Band RATE
Row width		RATE		per acre
in inches		per acre	•	

Band width		Broadcast		Band
in inches	Х	VOLUME of	=	VOLUME
Row width		solution		of solution
in inches		per acre		per acre

Use nozzles that provide uniform coverage within the treated area. Keep shields on shielded sprayers adjusted to protect desirable vegetation. EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT WITH DESIRABLE VEGETATION.

For specific rates of application and instructions for control of various annual and perennial weeds, see the ''WEEDS CONTROLLED'' section of this label.

WIPER APPLICATORS

Wiper applicators are devices that physically wipe appropriate amounts of this product directly onto the weed.

Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Operate this equipment at ground speeds no greater than 5 mph. Performance may be improved by reducing speed in areas of heavy weed infestations to ensure adequate wiper saturation. Better results may be obtained if 2 applications are made in opposite directions.

Avoid leakage or dripping onto desirable vegetation. Adjust height of applicator to ensure adequate contact with weeds. Keep wiping

surfaces clean. Be aware that, on sloping ground, the herbicide solution may migrate, causing dripping on the lower end and drying of the wicks on the upper end of a wiper applicator.

Do not use wiper equipment when weeds are wet.

Mix only the amount of solution to be used during a 1-day period, as reduced activity may result from use of leftover solutions. Clean wiper parts immediately after using this product by thoroughly flushing with water.

Do not add surfactant to the herbicide solution.

For Rope or Sponge Wick Applicators -- Mix 1 gallon of this product in 2 gallons of water to prepare a 33 percent solution. Apply this solution to weeds listed in this ''WIPER APPLICATORS'' section.

For Porous-Plastic Applicators -- Solutions ranging from 33 to 100 percent of this product in water may be used in porous-plastic wiper applicators.

When applied as recommended under the conditions described for ''WIPER APPLICATORS'', this product CONTROLS the following weeds:

ANNUAL GRASSES

Corn

Zea mays

Panicum, Texas Panicum texanum

Rye, common Secale cereale

Shattercane Sorghum bicolor

ANNUAL BROADLEAVES

Sicklepod

Cassia obtusifolia

Spanishneedles Bidens bipinnata

arhur heistle

Starbur, bristly Acanthospermum hispidum

When applied as recommended under the conditions described for ''WIPER APPLICATORS'', this product SUPPRESSES the following weeds:

ANNUAL BROADLEAVES

Beggarweed, Florida
Desmodium tortuosum

Dogfennel Eupatorium capilliflorium

Pigweed, redroot
Amaranthus retroflexus

Ragweed, common Ambrosia artemisiifolia

Ragweed, giant Ambrosia trifida

Sunflower
Helianthus annuus

Thistle, musk Carduus nutans

Velvetleaf
Abutilon theophrasti

PERENNIAL GRASSES

Bermudagrass . Cynodon dactylon

Guineagrass
Panicum maximum

Johnsongrass Sorghum halepense

Smutgrass Sporobolus poiretii

Vaseygrass Paspalum urvillei

PERENNIAL BROADLEAVES

Dogbane, hemp Apocynum cannabinum

Milkweed

and the second of

Ascelepias syriaca

Nightshade, silverleaf Solanum elaeagnifolium

Thistle, Canada Cirsium arvense

WEEDS CONTROLLED

This herbicide controls many annual and perennial grasses and broadleaf weeds.

ANNUAL WEEDS

- · Apply to actively growing grass and broadleaf weeds.
- Allow at least 3 days after treatment before tillage.
- For maximum agronomic benefit, apply when weeds are 6 inches or less in height.
- To prevent seed production, applications should be made prior to seedhead formation.
- This product does not provide residual control; therefore, delay application until maximum weed emergence. Repeat treatments may be necessary to control later germinating weeds.

LOW-VOLUME BROADCAST APPLICATION (LOW-RATE TECHNOLOGY)

When applied as directed under the conditions described, this product will control the weeds listed below when:

- 1. Water carrier volumes of 3 to 10 gallons per acre for ground applications and 3 to 5 gallons per acre for aerial applications are recommended. (See the ''AERIAL APPLICATION'' section of this label for approved sites.)
- 2. A nonionic surfactant is added at 0.5 to 1 percent by total spray volume. Use 0.5 percent surfactant concentration when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration for those surfactants containing less than 70 percent active ingredient.

NOTE

- The addition of 2 percent dry ammonium sulfate by weight or 17 pounds per 100 gallons of water may increase the performance of this product on annual weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' section of this label.
- Do not tank-mix with soil residual herbicides when using these rates unless otherwise specified.
- For weeds that have been mowed, grazed or cut, allow regrowth to occur prior to treatment.
- Refer to the ''TANK MIXTURES'' portion of this section for control of additional broadleaf weeds.

WEED SPECIES	MAXIMUM HEIGHT/LENGTH	RATE PER ACRE* (Fluid Ounces)	
Foxtail Setaria spp.	12"	8 oz.	
Barnyardgrass Echinochloa crus-galli	6" (0 to 4" (4 to 6"	12 oz. 16 oz. ¹) 24 oz. ¹)	

Bluegrass, annual
Poa annua

Brome, downy**
Bromus tectorum

Mustard, blue Chorispora tenella

Mustard, tansy Descurainia pinnata

Mustard, tumble Sisymbrium altissimum

Mustard, wild Sinapis arvensis

Spurry, umbrella Holosteum umbellatum Barley

Hordeum vulgare

12"

Rye

Secale cereale

Sandbur, field

Cenchrus spp.

Shattercane

Sorghum bicolor

Stinkgrass

Eragrostis cilianensis

Wheat

Triticum aestivum

Morningglory

Ipomoea spp.

2"

16 oz.

Sicklepod

Cassia obtusifolia

Bluegrass, bulbous

Poa bulbosa

6"

Cheat

Bromus secalinus

Chickweed, common

Stellaria media

Chickweed, mouseear

Cerastium vulgatum

Corn

Zea mays

Goatgrass, jointed

Aegilops cylindrica

Groundsel, common

Senecio vulgaris

Renbit

Lamium amplexicaule

Horseweed/Marestail Conyza canadensis

Lambsquarters, common Chenopodium album

Pennycress, field Fanweed Thlaspi arvense

Rocket, London Sisymbrium irio

Ryegrass, Italian
Lolium multiflorum

Shepherdspurse Capsella bursa-pastoris

Spurge, annual Euphorbia spp.

Buttercup

Ranunculus spp.

Cocklebur

Xanthium strumarium

Crabgrass
Digitaria spp.

Dwarfdandelion Krigia cespitosa

Falseflax, smallseed Camelina microcarpa

Foxtail, Carolina Alopecurus carolinianus

Johnsongrass, seedling Sorghum halepense

Oats, wild Avena fatua

Panicum, fall
Panicum dichotomiflorum

Panicum, Texas
Panicum texanum

12"

Pigweed, redroot
Amaranthus retroflexus

Pigweed, smooth
Amaranthus hybridus

Witchgrass

Panicum capillare

3 to 4" 24 oz Sicklepod Cassia obtusifolia 4" Signalgrass, broadleaf Brachiaria platyphylla 7 to 12" Horseweed/Marestail Conyza canadensis Lambsquarters, common Chenopodium album Spurge, annual Euphorbia spp. 4 " 32 oz. Rice, red Oryza sativa Teaweed Sida spinosa

Sprangletop
Leptochloa spp. 6"

Geranium, Carolina 12"
Geranium carolinianum

Goosegrass Eleusine indica

Primrose, cutleaf evening Oenothera laciniate

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Pusley, Florida Richardia scabra

Sicklepod 5 to 12"
Cassia obtusifolia

Spanishneedles
Bidens bipinnata

Filaree

12"

48 oz.

Erodium spp.

Sprangletop

Leptochloa spp.

¹Use these rates to control barnyardgrass in Alabama, Arkansas, Mississippi, Missouri, Louisiana and Texas for preplant treatments.

- * For those rates less than 32 fluid ounces per acre, this product at rates up to 32 fluid ounces per acre may be used where heavy weed densities exist.
- ** For control in no-till systems, use 16 fluid ounces per acre.

TANK MIXTURES

Roundup plus BANVEL plus NONIONIC SURFACTANT

Roundup plus 2,4-D plus NONIONIC SURFACTANT

DO NOT APPLY BANVEL OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA.

These tank mixtures are recommended for use in fallow and reduced tillage areas only. Follow use directions as given in the ''LOW-VOLUME BROADCAST APPLICATION'' section.

This product plus Banvel or 2,4-D will control the annual grasses and broadleaf weeds listed for this product alone at the indicated heights (except 8 fluid ounces per acre applications), plus the following broadleaf weeds. For those weeds previously listed at 8 fluid ounces of this product alone per acre, use 12 fluid ounces in these tank mixtures.

NOTE: Refer to the specific product labels for crop rotation restrictions and cautionary statements of all products used in tank mixtures. Some crop injury may occur if Banvel is applied within 45 days of planting. The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed species.

Apply 12 to 16 fluid ounces of this product plus 0.25 lb. a.i. of Banvel or 0.5 pound a.i. of 2,4-D, plus 0.5 to 1 percent nonionic

surfactant by total spray volume per acre to control dense populations of the following annual broadleaf weeds when less than the height indicated:

Cocklebur (12")
Xanthium strumarium

Kochia* (6")
Kochia scoparia

Lambsquarters (12") Chenopodium album

Lettuce, prickly (6")
Lactuca serriola

Marestail/Horseweed (6") Conyza canadensis

Morningglory (6")

Ipomoea spp.

Pigweed, redroot (12")
Amaranthus retroflexus

Pigweed, smooth (12")
Amaranthus hybridus

Thistle, Russian (12") Salsola kali

*Controlled with Banvel tank mixture only.

Apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre to control the following annual broadleaf weeds when less than 6 inches in height.

Ragweed, common Ambrosia artemisiifolia

Ragweed, giant Ambrosia trifida

Smartweed, Pennsylvania Polygonum pensylvanicum

Velvetleaf
Abutilon theophrasti

HIGH-VOLUME BROADCAST APPLICATIONS

When applied as directed under the conditions described, this product will control the weeds listed below when water carrier volumes are 10 to 40 gallons per acre for ground applications.

Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume. Use 1 quart per acre if weeds are less than 6 inches tall and 1.5 quarts per acre if weeds are over 6 inches tall. If weeds have been mowed, grazed, or cut, allow adequate time for new growth to reach recommended stages prior to treatment. These rates will also provide control of weeds listed in the ''LOW-VOLUME BROADCAST APPLICATION'' section.

WEED SPECIES

Balsamapple*
Momordica charantia

Bassia, fivehook Bassia hyssopifolia

Brome Bromus spp.

Fiddleneck
Amsinckia spp.

Flaxleaf Fleabane Conyza bonariensis

Fleabane Erigeron spp.

Kochia Kochia scoparia

Lettuce, prickly Lactuca serriola

Panicum Panicum spp.

Ragweed, common Ambrosia artemisiifolia

Ragweed, giant Ambrosia trifida

Smartweed, Pennsylvania Polygonum pensylvanicum

Sowthistle, annual Sonchus cleraceus

Sunflower

Helianthus annuus

Thistle, Russian Salsola kali

Velvetleaf

Abutilon theophrasti

*Apply with hand-held equipment only.

PERENNIAL WEEDS

Apply this product as follows to control or destroy most perennial weeds:

NOTE: If weeds have been mowed or tilled, do not treat until plants have resumed active growth and have reached the recommended stages.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Repeat treatments must be made prior to crop emergence.

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product on perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' section of this label.

When applied as recommended under the conditions described, this product WILL CONTROL the following PERENNIAL WEEDS:

Alfalfa

Medicago sativa

Alligatorweed*

Alternanthera philoxeroides

Artichoke, Jerusalem

Helianthus tuberosus

Bahiagrass

Paspalum notatum

Bentgrass

Agrostis spp.

Bermudagrass

Cynodon dactylon

Bermmdagrass, water (knotgrass) Paspalum distichum

Bindweed, field Convolvulus arvensis

Bluegrass, Kentucky Poa spp.

Blueweed, Texas Helianthus ciliaris

Brackenfern Pteridium aquilinum

Bromegrass, smooth Bromus inermis

Bursage, woollyleaf Franseria tomentosa

Canarygrass, reed Phalaris arundinacea

Cattail
Typha spp.

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Clover, red Trifolium pratense

Clover, white Trifolium repens

Cogongrass
Imperata cylindrica

Dallisgrass
Paspalum dilatatum

Dandelion Taraxacum officinale

Dock, curly Rumex crispus

Dogbane, hemp Apocynum cannabinum

Fescues
Festuca spp.

Fescue, tall

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Festuca arundinacea

Guineagrass

Pancium maximum

Horsenettle

Solanum carolinense

Horseradish

Armoracia rusticana

Johnsongrass

Sorghum halepense

Kikuyugrass

Pennisetum clandestinum

Knapweed

Centaurea repens

Lantana

Lantana camara

Milkweed

Asclepias spp.

Muhly, wirestem

Muhlenbergia frondonsa

Mullein, common

Verbascum thapsus

Napiergrass

Pennisetum purpureum

Nightshade, silverleaf

Solanum elaeagnifolium

Nutsedge, purple, yellow Cyperus rotundus

Syperus rotundus Cyperus esculentus

Orchardgrass

Dactylis glomerata

Pampasgrass

Cortaderia jubata

Paragrass

Brachiaria mutica

Phragmites*

Phragmites spp.

Quackgrass

Agropyron repens

Redvine*

Brunnichia ovata

Reed, giant

Arundo donax

Ryegrass, perennial

Lolium perenne

Smartweed, swamp

Polygonum coccineum

Spurge, leafy*

Euphorbia esula

Sweet potato, wild*

Ipomoea pandurata

Thistle, Canada

Cirsium arvense

Timothy

Phleum pratense

Torpedograss*

Panicum repens

Trumpetcreeper*

Campsis radicans

Vaseygrass

Paspalum urvillei

Wheatgrass, western

Agropyron smithii

*Partial Control

This product is not registered in California for use on water bermudagrass.

See ''DIRECTIONS FOR USE'' and ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' sections of this label for labeled uses and specific application instructions.

Alfalfa--Apply 1 quart of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10

gallons of water per acre. Make application after the last hay cutting in the fall. Allow alfalfa to regrow to a height of 6 to 8 inches or more prior to treatment. Applications should be followed with deep tillage at least 7 days after treatment, but before soil freeze-up.

Alligatorweed--Apply 4 quarts of this product per acre or apply a 1.5 percent solution with hand-held equipment to provide partial control. Apply when most of the plants are in bloom. Repeat applications will be required to maintain such control.

Bentgrass--For suppression in grass seed production areas. For ground applications only, apply 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure entire crown area has resumed growth prior to a fall application. Bentgrass should be actively growing and have at least 3 inches of growth. Tillage prior to treatment should be avoided. Tillage 7 to 10 days after application is recommended for best results. Failure to use tillage after treatment may result in unacceptable control.

Bermudagrass--For control, apply 5 quarts of this product per acre. For partial control, apply 3 quarts per acre. Treat when bermudagrass is actively growing and seedheads are present. Retreatment may be necessary to maintain control. Allow 7 or more days after application before tillage.

Bermidagrass, water (knotgrass) -- Apply 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Apply when water bermudagrass is actively growing and 12 to 18 inches in length. Allow 7 or more days before tilling, flushing or flooding the field.

Fall applications only - Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Fallow fields should be tilled prior to application. Apply prior to frost on water bermudagrass that is actively growing and 12 to 18 inches in length. Allow 7 or more days before tillage.

Bindweed, field—For control, apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts east of the Mississippi River. Apply when the weeds are actively growing and are at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Also for control, apply 2 quarts of this product plus 0.5 pound a.i. of Banvel in 10 to 20 gallons of water per acre. At these rates, apply using ground application only.

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The following tank mixtures with 2,4-D may be applied using aerial application equipment (except in California) in fallow and reduced tillage systems only.

For suppression on irrigated agricultural land, apply 1 to 2 quarts of this product plus 1 pound a.i. of 2,4-D in 10 to 20 gallons of water per acre with ground equipment only. Applications should be made following harvest or in fall fallow ground when the bindweed is actively growing and the majority of runners are 12 inches or more in length. The use of at least one irrigation will promote active bindweed growth.

For suppression, apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Applications should be delayed until maximum emergence has occurred and when vines are between 6 to 18 inches in length.

In California only, apply 1 to 5 quarts of this product per acre. Actual rate needed for suppression or control will vary within this range depending on local conditions.

For suppression on irrigated land where annual tillage is performed, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing bindweed that has reached a length of 12 inches or greater. Allow maximum weed emergence and runner growth. Do not treat when weeds are under drought stress as good soil moisture is necessary for active growth. Allow 3 or more days after application before tillage.

Bluegrass, Kentucky / Bromegrass, smooth / Orchardgrass--Apply 2 quarts of this product in 10 to 40 gallons of water per acre when the grasses are actively growing and most plants have reached bootto-early seedhead stage of development. For partial control in pasture or hay crop renovation, apply 1 to 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing plants when most have reached 4 to 12 inches in height. Allow 7 or more days after application before tillage.

Orchardgrass (sods going to no-till corn)—Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to orchardgrass that is a minimum of 12 inches tall for spring applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting. A sequential application of atrazine will be necessary for optimum results.

Blueweed, Texas--Apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts per acre east of the Mississippi River. Apply when weed is actively growing and is at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. New leaf development indicates active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Brackenfern--Apply 3 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment. Apply to fully expanded fronds which are at least 18 inches long.

Bursage, woollyleaf--For control, apply 2 quarts of this product plus 1 pint of Banvel per acre. For partial control, apply 1 quart of this product plus 1 pint of Banvel per acre. Add 0.5 to 1 percent nonionic surfactant by total spray volume and apply in 3 to 20 gallons of water per acre. Apply when plants are producing new active growth which has been initiated by moisture for at least 2 weeks and when plants are at or beyond flowering.

Canarygrass, reed/Timothy / Wheatgrass, western--Apply 2 to 3 quarts of this product per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth. Allow 7 or more days after application before tillage.

Cogongrass--Apply 3 to 5 quarts of this product plus 0.5 to 1 percent nonionic surfactant in 10 to 40 gallons of water per acre. Apply when Cogongrass is at least 18 inches tall and actively growing in late summer or fall. Allow 7 or more days after application before tillage or mowing. Due to uneven stages of growth and the dense nature of vegetation preventing good spray coverage, repeat treatments may be necessary to maintain control.

Dandelion/Dock, curly--Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fluid ounces of this product plus 0.5 pound a.i. 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre.

Dogbane, hemp--Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage.

For suppression, apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Delay applications until maximum emergence of dogbane has occurred.

Fescue, tall--Apply 3 quarts of this product in 10 to 40 gallons of water per acre to actively growing plants when most have reached boot-to-early seedhead stage of development.

Fall applications only--Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to fescue in the fall when actively growing and plants have 6 to 12 inches of new growth. Allow 7 or more days after application before tillage. A sequential application of 1 pint per acre of this product plus nonionic surfactant will improve long-term control and control seedlings germinating after fall treatments or the following spring.

Guineagrass--Apply 3 quarts of this product per acre or use a 1 percent solution with hand-held equipment. Apply to actively growing guineagrass when most has reached at least the 7-leaf stage of growth. Ensure thorough coverage when using hand-held equipment. Allow 7 or more days after application before tillage.

Johnsongrass/Ryegrass, perennial—Apply 1 to 3 quarts of this product per acre. In annual cropping systems apply 1 to 2 quarts of this product per acre. Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre. In noncrop, or areas where annual tillage (no-till) is not performed, apply 2 to 3 quarts of this product in 10 to 40 gallons of water per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth or in the fall prior to frost. Allow 7 or more days after application before tillage. Do not tank-mix with residual herbicides when using the 1 quart per acre rate.

For burndown of Johnsongrass, apply 1 pint per acre plus 0.5 to 1 percent nonionic surfactant in 3 to 10 gallons of water per acre before the plants reach a height of 12 inches. For this use, allow at least 3 days after treatment before tillage.

Spot treatment (partial control or suppression) -- Apply a 1 percent solution of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume when Johnsongrass is 12 to 18 inches in height. Coverage should be uniform and complete.

Kikuyugrass--Apply 2 to 3 quarts of this product per acre. Spray

when most kikuyugrass is at least 8 inches in height (3 or 4-leaf stage of growth) and actively growing. Allow 3 or more days after application before tillage.

Knapweed/Horseradish--Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage.

Lantana—Apply this product as a 1 to 1.25 percent solution using hand-held equipment only. Apply to actively growing lantana at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth. Allow 7 or more days after application before tillage.

Milkweed, common--Apply 3 quarts of this product per acre. Apply when actively growing and most of the milkweed has reached the late bud to flower stage of growth. Following small grain harvest or mowing, allow milkweed to regrow to a mature stage prior to treatment. Allow 7 or more days after application before tillage.

Muhly, wirestem—Apply 1 to 2 quarts of this product per acre. Use 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre or in pasture, sod, or noncrop areas. Spray when the wirestem muhly is 8 inches or more in height and actively growing. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage. This product will not provide residual control of wirestem muhly from seeds which germinate after application of this product. Do not tank mix with residual herbicides when using the 1 quart per acre rate.

Nightshade, silverleaf--For control, apply 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Applications should be made when at least 60 percent of the plants have berries. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth.

Nutsedga: purple, yellow--Apply 3 quarts of this product per acre as a broadcast spray, or apply a 1 to 2 percent solution from handheld equipment to control existing nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Repeat treatments will be required for long-

term control of ungerminated tubers.

Sequential applications of 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre will provide control. Make applications when a majority of the plants are in the 3 to 5-leaf stage (less than 6 inches tall). Repeat this application, as necessary, when newly emerging plants reach the 3 to 5-leaf stage. Subsequent applications will be necessary for long-term control.

For suppression to partial control of existing plants, apply 1 pint to 2 quarts of this product per acre, plus 0.5 to 1 percent nonionic surfactant in 3 to 40 gallons of water per acre. Treat when plants have 3 to 5 leaves and most are less than 6 inches tall. Repeat treatments will be required to control subsequent emerging plants or regrowth of existing plants. Wait 7 days after treatment before tillage or mowing.

For improved control of existing nutsedge plants, apply 1 to 3 quarts of this product plus 8 to 16 fluid ounces of Goal per acre plus 0.5 to 1 percent nonionic surfactant in 3 to 40 gallons of water per acre. Treat when plants have 3 to 5 leaves and most are less than 6 inches tall. Repeat treatments will be required to control subsequent emerging plants or regrowth of existing plants. Wait 7 days after treatment before tillage or mowing.

Pampasgrass--Apply this product as a 1.5 to 2 percent solution using hand-held equipment. Apply to plants that are actively growing at or beyond the boot stage of growth. Thorough coverage is necessary for best control.

Phragmites—For partial control of phragmites in Florida and the counties of other states bordering the Gulf of Mexico, apply 5 quarts per acre as a broadcast spray or apply a 2 percent solution from hand-held equipment. In other areas of the U.S., apply 3 quarts per acre as a broadcast spray or apply a 1 percent solution from hand-held equipment for partial control. For best results, treat during late summer or fall months or when plants are actively growing and in full bloom. Treatment before or after this stage may lead to reduced control. Due to the dense nature of the vegetation, which may prevent good spray coverage or uneven stages of growth, repeat treatments may be necessary to maintain control. Visual control symptoms will be slow to develop.

Quackgrass—In Annual Cropping Systems, or in Pastures and Sods Followed by Deep Tillage: Apply 1 to 2 quarts of this product per acre. For the 1 quart rate, apply 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. For the 2 quart rate, apply in 10 to 40 gallons of water per acre. Do not tank mix with residual herbicides when using the 1 quart rate. Spray when quackgrass is 6 to 8 inches in height and actively growing. Do not till between harvest and fall applications

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or in fall or spring prior to spring application. Allow 3 or more days after application before tillage. In pastures or sods, for best results use a moldboard plow.

Quackgrass—Pasture or Sod or Other Noncrop Areas Where Deep Tillage is Not Planned Following Application: Apply 2 to 3 quarts in 10 to 40 gallons of water per acre. Spray when the quackgrass is greater than 8 inches tall and actively growing. Do not till between harvest and fall application or in fall or spring prior to spring application. Allow 3 or more days after application before tillage.

Redvine--For suppression, apply 24 fluid ounces of this product per acre at each of two applications 7 to 14 days apart or a single application of 2 quarts per acre. Apply recommended rates in 5 to 10 gallons of water per acre plus 0.5 to 1 percent nonionic surfactant by total volume. Apply to actively growing plants in late September or early October, which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

Reed, giant—For control of giant reed, apply a 2 percent solution of this product when plants are actively growing. Best results are obtained when applications are made in late summer to fall.

Smartweed, swamp--Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fluid ounces of this product plus 0.5 pound active ingredient of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Spurge, leafy--For suppression, apply 16 fluid ounces of this product plus 0.5 pound active ingredient 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing. If mowing has occurred prior to treatment, apply when most of the plants are 12 inches tall. Allow 7 or more days after application before tillage.

Sweet Potato, wild—Apply this product as a 2 percent solution using hand-held equipment. Apply to actively growing weeds that are at or beyond the bloom stage of growth. Repeat applications will be required. Allow the plant to reach the recommended stage of growth before retreatment. Allow 7 or more days before tillage.

Thistle, Canada-Apply 2 to 3 quarts of this product per acre. Apply

to actively growing thistles when most are at or beyond the bud stage of growth. After harvest, mowing or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to the application of this product. Fall treatments must be applied before a killing frost. Allow 3 or more days after application before tillage.

For suppression of Canada thistle, apply 1 quart per acre of this product, or 1 pint of this product plus 0.5 pound a.i. 2,4-D per acre, plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall after harvest, mowing or tillage. Allow rosette regrowth to a minimum of 6 inches in diameter before treating. Applications can be made as long as leaves are still green and plants are actively growing at the time of application. Allow 3 or more days after application before tillage.

Torpedograss—Apply 4 to 5 quarts of this product per acre to provide partial control of torpedograss. Apply to actively growing torpedograss when most plants are at or beyond the seedhead stage of growth. Repeat applications will be required to maintain control. Fall treatments must be applied before frost. Allow 7 or more days after application before tillage.

Trumpetcreeper--For control, apply 2 quarts of this product per acre in 5 to 10 gallons of water per acre. Apply to actively growing plants in late September or October, which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

Other perennials listed on this label—Apply 3 to 5 quarts of this product per acre. Apply when actively growing and most have reached early head or early bud stage of growth. Allow 7 or more days after application before tillage.

WOODY BRUSE AND TREES

When applied as recommended under the conditions described, this product CONTROLS or PARTIALLY CONTROLS the following woody brush, plants and trees:

Alder

Alnus spp.

Ash*

Fraxinus spp.

Aspen, quaking Populus tremuloides

Bearmat (Bearclover)

Chamaebatia foliolosa

Birch

Betula spp.

Blackberry

Rubus spp.

Broom:

French

Cytisus monspessulanus

Scotch

Cytisus scoparius

Buckwheat, California*

Eriogonum fasciculatum

Cascara*

Rhamnus purshiana

Catsclaw*

Acacia greggi

Ceanothus*

Ceanothus spp.

Chamise

Adenostoma fasciculatum

Cherry:

Bitter

Prunus emarginata

Black

Prunus serotina

Pin

Prunus pensylvanica

Coyote brush

Baccharis consanguinea

Creeper, Virginia*

Parthenocissus quinquefolia

Dewberry

Rubus trivialis

Elderberry

Sambucus spp.

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Elm*

Ulmus spp.

Eucalyptus

Eucalyptus spp.

Hasardia*

Haplopappus squamosus

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Hawthorn

Crataegus spp.

Hazel

Corylus spp.

Honeysuckle

Lonicera spp.

Kudzu

Pueraria lobata

Locust, black*

Robinia pseudoacacia

Madrone

Arbutus menziesii

Manzanita

Arctostaphylos spp.

Maple:

Red**

Acer rubrum

Sugar

Acer saccharum

Vine*

Acer circinatum

Monkey Flower*

Mimulus guttatus

Oak:

Black*

Quercus velutina

Northern Pin

Quercus palustris

Post

Quercus stellata

Red

Quercus rubra

Southern Red

Quercus falcata

White*

Quercus alba

Persimmon*

Diospyros spp.

Poison Ivy

Rhus radicans

Poison Oak

Rhus toxicodendron

Poplar*, yellow

Liriodendron tulipifera

Raspberry

Rubus spp.

Rose, multiflora

Rosa multiflora

Russian-olive***

Elaeagnus angustifolia

Sage, black

Salvia mellifera

Sagebrush, California

Artemisia californica

Salmonberry

Rubus spectabilis

Sassafras

Sassafras aibidum

Sourwood

Oxydendrum arboreum

Sumac:

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Poison*

Rhus vernix

Smooth*

Rhus glabra

Winged*

Rhus copallina

Sweetgum

Liquidambar styraciflua

Swordfern*

Polystichum munitum

Tallowtree, Chinese

Sapium sebiferum

Tan Oak

Lithocarpus densiflorus

Thimbleberry

Rubus parviflorus

Tobacco, tree*

Nicotiana glauca

Trumpetcreeper

Campsis radicans

Willow

Salix spp.

- Partial control
- ** See below for control or partial control instructions.
- *** This product is not registered in California for use on Russian-olive.

NOTE: If brush has been mowed or tilled or trees have been cut, do not treat until regrowth has reached the recommended stages of growth.

Apply this product when plants are actively growing and, unless otherwise directed, after full leaf expansion. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when application is made in the spring to early summer when brush species are at high moisture content and are flowering.

Ensure thorough coverage when using hand-held equipment. Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

See ''DIRECTIONS FOR USE'', and ''MIXING, ADDITIVES, and APPLICATION INSTRUCTIONS'' sections of this label for labeled uses and specific application instructions.

Apply this product as follows to control or partially control the following woody brush and trees.

Alder/Dewberry/Honeysuckle/Post Oak/Raspberry—For control, apply 3 to 4 quarts per acre of this product as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment.

Aspen, quaking/Cherry: bitter, black, pin/Hawthorn /Oak, southern red/Sweetgum/Trumpetcreeper— For control, apply 2 to 3 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment.

Birch/Elderberry/Hazel/Salmonberry/Thimbleberry—For control, apply 2 quarts per acre of this product as a broadcast spray or as a 1 percent solution with hand-held equipment.

Blackberry—For control, apply 3 to 4 quarts per acre of this product as a broadcast spray, or 1 to 1.5 percent solution with hand-held equipment. Make application after plants have reached full leaf maturity. Best results are obtained when applications are made in late summer or fall. After berries have set or dropped in late fall, blackberry can be controlled by applying a 3/4 percent solution of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume with hand-held equipment. For control of blackberries after leaf drop and until killing frost or as long as stems are green, apply 3 to 4 quarts of this product in 10 to 40 gallons of water per acre.

Broom: French, Scotch-For control, apply a 1.5 to 2 percent solution with hand-held equipment.

Buckwheat, California/Hasardia/Monkey Flower/ Tobacco, tree—For partial control of these species, apply a 1 to 2 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

Catsclaw—For partial control, apply as a 1 to 1.5 percent solution with hand-held equipment.

Coyote Brnsh—For control, apply a 1.5 to 2 percent solution with hand-held equipment when at least 50 percent of the new leaves are

fully developed.

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Eucalyptus—For control of eucalyptus resprouts, apply a 2 percent solution of this product with hand-held equipment when resprouts are 6 to 12 feet tall. Ensure complete coverage. Apply when plants are growing actively. Avoid application to drought-stressed plants.

Kudzu-For control, apply 4 quarts of this product per acre as a broadcast spray or as a 2 percent solution with hand-held equipment. Repeat applications will be required to maintain control.

Madrone resprouts—For suppression or partial control, apply a 2 percent solution of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with spring/early summer treatments.

Maple, red-For control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed. For partial control, apply 2 to 4 quarts of this product per acre as a broadcast spray.

Maple, sugar/Oak, northern pin/Oak red-For control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.

Poison Ivy/Poison Oak—For control, apply 4 to 5 quarts of this product per acre as a broadcast spray or as a 2 percent solution with hand-held equipment. Repeat applications may be required to maintain control. Fall treatments must be applied before leaves lose green color.

Rose, multiflora-For control, apply 2 quarts of this product per acre as a broadcast spray or as a l percent solution with hand-held equipment. Treatments should be made prior to leaf deterioration by leaf-feeding insects.

Sage, black/Sagebrush, California/Chamise/Tallowtree, Chinese—For control of these species, apply a 1 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

Tan oak resprouts—For suppression or partial control, apply a 2 percent solution of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with fall applications.

Willow-For control, apply 3 quarts of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment.

Other Woody Brush and Trees listed on this label—For partial control, apply 2 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 2 percent solution with hand-held equipment.

NONCROP USES

See ''GENERAL INFROMATION'' and ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' sections of this label for essential product performance information and the following ''NONCROP'' sections for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE TURFGRASSES, TREES, SHRUBS OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seeds.

This product does not provide residual weed control. For subsequent weed control, follow a label-approved herbicide program.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

INDUSTRIAL, RECREATIONAL AND PUBLIC AREAS

When applied as directed for ''NONCROP USES'', under conditions described, this product controls annual and perennial weeds listed on this label growing in areas such as airports, ditch banks, dry ditches, dry canals, fencerows, golf courses, highways, industrial plant sites, lumber yards, parking areas, parks, petroleum tank farms and pumping installations, pipelines, power and telephone rights-of-way, railroads, roadsides, schools, storage areas, utility substations, other public areas and similar industrial or noncrop areas.

For specific rates of application and instructions for control of various annual and perennial weeds and woody brush and trees, see the ''WEEDS CONTROLLED'' section of this label.

This product may be applied with recirculating sprayers, shielded applicators, or wiper applicators in any noncrop site specified on this label. See the Selective Equipment part of ''APPLICATION EQUIPMENT and TECHNIQUES'' section of this label for information on proper use and calibration of this equipment.

TANK MIXTURES FOR INDUSTRIAL SITES AND FORESTRY SITE PREPARATIONS

Roundup plus OUST

Use on industrial sites including airports, industrial plants, lumberyards, petroleum tank farms, pumping stations, pipelines, railroads, roadsides, storage areas or other similar sites where bare ground is desired.

This tank mixture may also be used as a site preparation treatment for sites to be planted to jack pine, loblolly pine, red pine, slash pine and Virginia pine.

When applied as directed for ''NONCROP USES'' under the conditions described, this product plus Oust provides control of annual weeds listed in the ''WEEDS CONTROLLED'' section of the label for this product and Oust, and control or partial control of the perennial weeds listed below.

Apply 1 to 2 quarts of this product with 2 to 4 ounces of Oust in 10 to 40 gallons of spray solution per acre as a broadcast spray to actively growing weeds.

This mixture may be applied by aerial equipment in site prep operations. When applied by air, use the recommended rates in 5 to 15 gallons of spray solution per acre.

This product plus Oust tank mixtures may not be applied by air in California.

For control of annual weeds, use the lower rates of these products.

For control of the listed perennial weeds, use the higher rates of both products. For partial control, use the lower rates.

Bahiagrass

Paspalum notatum

Bermudagrass*

Cynodon dactylon

Broomsedge

Andropogon virginicus

Dock, curly

Rumex crispus

Dogfennel

Eupatorium capilliforium

Fescue, tall

Festuca arundinacea

Johnsongrass**

Sorghum halepense

Poorjoe**

Diodia teres

Quackgrass

Agropyron repens

Trumpetcreeper*

Campsis radicans

Vaseygrass

Paspalum urvillei

Vervain, blue

Verbena hastata

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

TANK MIXTURES NONCROP SITES

When applied as a tank mixture, this product provides control of the emerged annual weeds and partial control of the emerged perennial weeds listed in this label. When applied as a tank mixture, the following residual herbicides will provide preemergence control of the weeds listed in the individual product labels.

Roundup plus DIURON	
Roundup plus KROVAR* I	1
Roundup plus KROVAR II	
Roundup plus RONSTAR 50WP	

^{*}Suppression at the higher rates only.

^{**}Control at the lower rates.

	Roundup plus SIMAZINE, PRINCEP™ CALIBER™ 90	
	Roundup plus SIMAZINE 4L	
	Roundup plus SIMAZINE 80W	•
•	Roundup plus SURFLAN 75W	1
	Roundup plus SURFLAN AS	

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution. See the ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' section of this label before preparing these tank mixtures.

Read and carefully observe the label claims, cautionary statements, recommended use rates and all other information on the labels of all products used in these tank mixtures. Use according to the most restrictive label directions for each product in the mixture.

CONTROL OF EMERGED WEEDS

Annual Weeds—Apply 1 quart per acre of this product in these tank mixtures when weeds are less than 6 inches tall and 1.5 quarts per acre when weeds are more than 6 inches tall.

Perennial Weeds—For partial control of perennial weeds using these tank mixtures, apply 2 to 5 quarts per acre of this product. Follow the recommendations in the ''WEEDS CONTROLLED'' section of this label for stage of growth and rate of application for specific perennial weeds.

PREEMERGENCE WEED CONTROL

For preemergence weed control, refer to the individual product labels for specific noncrop sites, rates, carrier volumes and precautionary statements.

Mix only the quantity of spray solution which can be used during the same day. Do not allow these tank mixtures to stand overnight as this may result in reduced weed control.

APPLY THESE TANK MIXTURES THROUGH CONVENTIONAL BROADCAST EQUIPMENT ONLY.

FARMSTEAD WEED CONTROL

When applied as directed for ''NONCROP USES'', under conditions described, this product controls undesirable vegetation listed on this label around farmstead building foundations, along and in fences, shelterbelts and for general nonselective farmstead weed control.

For specific rates of application and instructions for control of various annual and perennial weeds, see the 'WEEDS CONTROLLED'' section of this label.

FARM DITCHES

This product will suppress perennial grasses along farm ditches. Apply this product at a rate of 6 to 8 fluid ounces per acre. Use 8 fluid ounces per acre when treating tall (coarse) fescue, fine fescue, orchardgrass or quackgrass covers. For best suppression of these species, add ammonium sulfate at a rate of 1.7 pounds per 10 gallons of spray solution. Use 6 fluid ounces per acre without ammonium sulfate when treating Kentucky bluegrass.

Apply treatments in 10 to 20 gallons of spray solution per acre to actively growing perennial grass covers. For best spray distribution and coverage, use flat fan nozzles.

Add a nonionic surfactant at a rate of 0.5 percent of the spray solution.

Where broadleaf weed control or suppression is desired, tank mix this product with an appropriate, labeled broadleaf weed herbicide.

CONSERVATION RESERVE PROGRAM (CRP ACRES)

This product can be used to control undesirable vegetation when rotating out of CRP acres or to suppress competitive growth and seed production of undesirable vegetation in CRP acres.

For specific rates of application for various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

CRP applications may be made with wiper applicators or conventional spray equipment.

For selective applications with broadcast spray equipment, apply 12 to 16 ounces per acre of this product in early spring before desirable CRP grasses, such as crested and tall wheatgrass, break

dormancy and initiate green growth. Late fall applications can be made after desirable perennial grasses have reached dormancy. Some stunting of CRP perennial grasses will occur if applications are made when plants are not dormant.

HABITAT MANAGEMENT

This product is recommended for the restoration and/or maintenance of native habitats and in wildlife management areas. Apply as recommended in the "NONCROP USES" section of this label.

Habitat Restoration and Maintenance - When applied as directed, exotic and other undesirable vegetation may be controlled in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broadspectrum vegetation control requirements in habitat management areas. Spot treatments can be made to selectively remove unwanted plants for habitat maintenance and enhancement. For spot treatments, care should be exercised to keep spray off of desirable plants.

Wildlife Food Plots - This product may be used as a site preparation treatment prior to planting wildlife food plots. Any wildlife food species may be planted after applying this product, or native species may be allowed to repopulate the area. If tillage is needed to prepare a seedbed, wait 7 days after applying this product before tilling.

ORNAMENTALS AND CHRISTMAS TREES

THIS PRODUCT IS NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN ORNAMENTALS AND CHRISTMAS TREES.

Note: Desirable plants may be protected from the spray solution by using shields or coverings made of cardboard or other impermeable material.

When applied as instructed for the conditions described for "NONCROP USES", this product controls undesirable vegetation listed on this label prior to planting, within and around greenhouses and shadehouses, and as a postdirected spray around established ornamentals and Christmas trees.

For specific rates of application and instructions for control of various annual and perennial weeds, see the ''Weeds Controlled'' section of this label.

Where repeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year.

Site Preparation-Following preplant applications of this product, any ornamental or Christmas tree species may be planted. Precautions should be taken to protect nontarget plants during site preparation applications.

Greenhouse/Shadehouse Use—This product may be used to control weeds listed on this label which are growing in greenhouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

Postdirected Spray—Use as a postdirected spray around established woody ornamental species or Christmas trees such as those listed below. Care must be exercised to avoid contact of spray, drift or mist with foliage of or green bark of established ornamental species.

Arborvitae

Thuja spp.

Azalea

Rhododendron spp.

Boxwood

Buxus spp.

Crabapple

Malus spp.

Euonymus

Euonymus spp.

Fir

Abies spp. Pseudotsuga spp. Jojoba

Simmondsia chinensis

Hollies

Ilex spp.

Lilac

Syringa spp.

Magnolia

Magnolia spp.

Maple

Acer spp.

Oak

Quercus spp.

Privet

Ligustrum spp.

Pine

Pinus spp.

Spruce

Picea spp. -

Yew

Taxus spp.

SILVICULTURAL SITES and RIGHTS-OF-WAY

1. 184 B. W. W.

NOTE: NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN SILVICULTURAL NURSERIES

When applied as directed for ''NONCROP USES'' under conditions described, this product controls undesirable vegetation listed on this label. This product also suppresses or controls undesirable vegetation listed on this label when applied at recommended rates for release of established coniferous species listed on this label.

For specific rates of application and instructions for control of various brush, annual and perennial weeds, see the ''WEEDS CONTROLLED'' section of this label. For specific rates of application for release of listed coniferous species, see the ''CONIFRE RELEASE'' part of this section of the label.

Where repeat applications are necessary, do not exceed 10.6 quarts

of this product per acre per year.

Aerial Application—This product may be applied using aerial spray equipment for silvicultural site preparation, conifer release and rights—of—way treatments. See the 'APPLICATION EQUIPMENT and TECHNIQUES' part of the 'MIXING, ADDITIVES and APPLICATION INSTRUCTIONS' section of this label for information on how to apply this product by air.

DO NOT APPLY THIS PRODUCT BY AIR TO RIGHTS-OF-WAY SITES IN THE STATE OF CALIFORNIA.

To reduce the aerial application drift hazard to aquatic sites*, to nontarget sites or any site containing desirable vegetation, always maintain appropriate buffer zones. A buffer zone of the following minimum distances should be maintained:

- Helicopters using a Microfoil[™] boom, a Thru-Valve[™] boom (TVB-45), or equivalent drift control systems, should maintain at least a 50-foot buffer zone.
- · When using other aerial equipment:
- Maintain at least a 75-foot buffer zone for applications using 2 quarts or less per acre of this product.
- 2. Maintain at least a 125-foot buffer zone for applications using more than 2 quarts per acre of this product.
- Maintain at least a 400-foot buffer zone for applications on rights-of-way when applied from 75 feet or more above ground level.

These distances should be increased if conditions favoring drift exist.

* Aquatic sites include all lakes, ponds and streams used for significant domestic purposes or angling.

SITE PREPARATION

Following preplant applications of this product, any silvicultural species may be planted.

POSTDIRECTED SPRAY

In established silvicultural sites, use as a spray on the foliage of undesirable vegetation. Care must be exercised to avoid contact of spray, drift or mist with foliage or green bark of desirable species.

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CONIFER RELEASE

For release, apply only where conifers have been established for more than one year. Vegetation should not be disturbed prior to treatment or until visual symptoms appear after treatment. Symptoms of treatment are slow to appear, especially in woody species treated in late fall. Injury may occur to conifers treated for release, especially where spray patterns overlap or the higher rates are applied or when applications are made during periods of active conifer growth. Do not use additional surfactant with conifer release applications.

Applications must be made after formation of final conifer resting buds in the fall or prior to initial bud swelling in spring. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Use the following rates for conifer release to control or partially control the weeds listed in the ''WEEDS CONTROLLED'' section of this label.

For release of the following conifer species:

Douglas fir

Pseudotsuga menziesii

Fir

Abies spp.

Hemlock

Tsuga spp.

Pines*

Pinus spp.

Spruce

Picea spp.

* Includes all species except eastern white pine, loblolly pine or slash pine.

Apply 1.5 to 2 quarts of this product per acre except in Washington and Oregon, west of the crest of the Cascade Mountains. For spring treatments west of the crest of the Cascade Mountains, apply 1 quart of this product per acre before conifer bud swell for control of annual weeds. For fall treatments in Washington and Oregon, west of the crest of the Cascade Mountains, apply 1 to 1.5 quarts of this product per acre before any major leaf drop of deciduous species.

For release of western hemlock, apply 1 quart of this product per acre.

For release of the following conifer species:

Loblolly pine Pinus taeda

Eastern white pine Pinus strobus

Slash pine Pinus elliottii

Late Season Application—Apply 1.5 to 2 quarts of this product in a minimum of 5 gallons of spray solution per acre during early autumn. Applications made prior to September 1 or when conditions are conducive to rapid growth of conifers will create the potential for increased injury in the form of tip and/or needle burn. Injury may decrease with later applications. Some autumn colors are acceptable at time of application. Apply prior to frost or leaf drop of undesirable plants. Applications made according to label directions will release loblolly pine, eastern white pine and slash pine by reducing competition from the following species:

Ash

Fraxinus spp.

Cherry:

Black

Prunus serotina

Pin

Prunus pensylvanica

Elm

Ulmus spp.

Hawthorn

Crataegus spp.

Locust, black

Robina pseudoacacia

Maple, red

Acer rubra

Oak:

Black

Quercus velutina

Post

Quercus stellata

Southern Red

Quercus falcata

White

Quercus alba

Persimmon

Diospyros spp.

Poplar, yellow

Liriodendron tulipfera

Sassafras

Sassafras albidum

Sourwood

Oxydendrum arboreum

Sumac:

Poison

Rhus vernix

Smooth

Rhus glabra

Winged

Rhus copallina

Sweetgum

Liquidambar styraciflua

Apply only to those sites where woody brush and trees listed in this label constitute the majority of the undesirable species.

Roundup plus Oust Tank Mixtures for Conifer Release from Herbaceous Weeds

To release **loblolly pines** from herbaceous weeds, tank mixtures of this product with Oust will provide control of annual weeds listed in the ''WEEDS CONTROLLED'' section of this and the Oust label, and partial control of the perennial weeds listed below.

Apply 16 to 24 fluid ounces of this product with 2 to 4 ounces of Oust in 10 to 30 gallons of spray solution per acre. Make application to actively growing weeds as a broadcast spray over the top of the young loblolly pines.

This product plus Oust tank mixtures may not be applied by air in California.

This tank mixture may be applied using aerial equipment. When applying by air, use the recommended rate in 5 to 15 gallons of spray solution per acre.

For control of annual weeds below 12 inches in height (or runner

length on annual vines), use the lower rates of both products. Use the higher rates of both products when annual weeds are in more advanced stages of growth and approaching flower or seed formation.

Use the higher rates of both products for partial control of the following perennial weeds. Use the lower rates for suppression of growth.

Bahiagrass

Paspalum notatum 🗼 🧢

Broomsedge

Andropogon virginicus

Dock, curly

Rumex crispus

Dogfennel

Eupatorium capilliforium

Fescue, tall

Festuca arundinacea

Johnsongrass*

Sorghum halepense

Poorjoe*

Diodía teres

Trumpetcreeper**

Campsis radicans

Vaseygrass

Paspalum urvillei

Vervain, blue

Verbena hastata

Pine damage may occur or can be accentuated if treatment takes place when young trees are under stress from drought, flood water, insects or disease.

Read and observe the cautionary statements and all other information appearing on the labels of all herbicides used.

^{*}Control at the higher rates.

^{**}Suppression at the higher rates only.

NOTE TO USER

This product must not be used in areas where adverse impact on federally designated endangered/threatened plant or aquatic species is likely.

Prior to making applications, the user of this product must determine that no such species are located in or immediately adjacent to the area to be treated.

CUT STUMP TREATMENTS

Woody vegetation may be controlled by treating freshly cut stumps of trees and resprouts with this product. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut vegetation close to the soil surface. Apply a 50 to 100 percent solution of this product to the freshly cut surface immediately after cutting. Delays in application may result in reduced performance. For best results, applications should be made during periods of active growth and full leaf expansion.

When used according to directions for cut stump application, this product will CONTROL, PARTIALLY CONTROL or SUPPRESS many types of woody brush and tree species, some of which are listed below:

Alder

Alnus spp.

Eucalyptus

Eucalyptus spp.

Madrone

Arbutus menziesii

Oak

Quercus spp.

Reed, giant

Arundo donax

Saltcedar

Tamarisk spp.

Sweetgum

Liquidambar styraciflua

Tan Oak

Lithocarpus densiflorus

Willow

Salix spp.

INJECTION AND FRILL APPLICATIONS

Woody vegetation may be controlled by injection or frill application of this product. Apply this product using suitable equipment which must penetrate into the living tissue. Apply the equivalent of 1 ml of this product per each 2 to 3 inches of trunk diameter (DBH). This is best achieved by applying a 50 to 100 percent concentration of this material either to a continuous frill around the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying diluted material to a continuous frill or more closely spaced cuttings. Avoid application techniques that allow runoff to occur from frill or cut areas in species that exude sap freely after frills or cutting. In species such as this, make frill or cut at an oblique angle so as to produce a cupping effect and use undiluted material. For best results, application should be made during periods of active growth and after full leaf expansion.

This treatment WILL CONTROL the following woody species:

Oak

Quercus spp.

Poplar

Populus spp.

Sweetgum

Liquidambar styraciflua

Sycamore

Platanus occidentalis

This treatment WILL SUPPRESS the following woody species:

Black gum

Nyssa sylvatica

Dogwood

Cornus spp.

Hickory

Carya spp.

Maple, red

Acer rubrum

TURFGRASSES AND GRASSES FOR SEED PRODUCTION

PREPLANT AND RENOVATION

When applied as directed for ''NONCROP USES'', under conditions described, this product controls most existing vegetation prior to the planting or renovation of either turfgrasses or grass seed production areas.

For specific rates of application and instructions for control of various annual and perennial weeds, and woody brush and trees, see the ''WEEDS CONTROLLED'' section of this label.

For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses, such as bermudagrass, summer or fall applications provide best control.

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

TURFGRASSES

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth listed in the ''WEEDS CONTROLLED'' section of this label.

Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray.

Desirable turfgrasses may be planted following the above procedures.

GRASSES FOR SEED PRODUCTION

Apply this product to actively growing weeds at the stages of growth recommended in the ''WEEDS CONTROLLED'' section of this label prior to planting or renovation of turf or forage grass areas grown for seed production.

DO NOT feed or graze treated areas within 8 weeks after application.

ANNUAL WEED CONTROL IN DORMANT BERMUDAGRASS AND BAHIAGRASS TURF When applied as directed for ''NONCROP USES'' under the conditions described, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant bermudagrass and bahiagrass turf. Refer to the rate table for Roundup alone under the ''RELEASE OF BERMUDAGRASS and BAHIAGRASS'' section of this label for recommended rates and volumes on the species to be suppressed or controlled. Treat only when turf is dormant and prior to spring greenup. Spot treatments or broadcast applications of this product in excess of 16 fluid ounces per acre may result in injury or delayed greenup in highly maintained turfgrass areas; i.e., golf courses, lawns, etc. DO NOT APPLY TANK MIXTURES of this product plus Oust in highly maintained turfgrass areas.

RELEASE OF BERMUDAGRASS OR BAHIAGRASS

NOTE: Use only in areas where bermudagrass or bahiagrass are desirable ground covers and where some temporary injury or discoloration can be tolerated. Use tank mixtures of this product plus Oust only on railroads, highways, utility plant sites, or other right-of-way areas.

When applied as directed for ''NONCROP USES' under the conditions described, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant bermudagrass or bahiagrass. This product may be tank-mixed with Oust as recommended for residual control. Make applications to dormant bermudagrass or bahiagrass. Tank mixtures of this product plus Oust may delay greenup. To avoid delays in greenup and minimize injury, do not add more than 1 ounce per acre of Oust on bermudagrass or more than 0.5 ounce per acre on bahiagrass, or treat when these grasses are in a semi-dormant condition.

For best results on winter annuals, treat when plants are in an early growth stage (below 6 inches in height) after most have germinated. For best results on tall fescue, treat when fescue is in or beyond the 4 to 6-leaf stage.

WEEDS CONTROLLED

Rate recommendations for control or suppression of winter annuals and tall fescue are listed below:

Apply the recommended rates of this product alone or as a tank mixture in 10 to 25 gallons of water, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre.

For the best recommendation for the mixture of weeds within your geographic area, contact your Monsanto sales representative.

WEEDS CONTROLLED OR SUPPRESSED WITH Roundup ALONE*

NOTE:

C = Control
S = Suppression

							
	Roundup FL				JID OZ/ACRE		
WEED SPECIES	8	12	16	24	32	64	
Barley, little Hordeum pusilium	. S	С	С	С	С	С	
Bedstraw, catchweed Galium aparine	S	С	С	С	С	c ·	
Bluegrass, annual Poa annua	S	С	С	С	С	С	
Chervil Chaerophyllum tainturieri	S	С	С	С	С	C	
Chickweed, common Stellaria media	S	С	С	С	С	С	
Clover, crimson Trifolium incarnatum	•	S	S	С	С	С	
Clover, large hop . Trifolium campestre	•	S	S	С	С	С	
Fescue, tall Festuca arundinaceae	•	•	•	•	S	S	
Geranium, Carolina Geranium carolinianum	•	•	s	s	С	С	
Henbit Lamium amplexicaule	•	S	С	С	С	С	
Ryegrass Italian Lolium multiflorum	•	•	s	С	С	С	
Speedwell, corn Veronica arvensis	S	С	С	С	С	С	
Vetch, common	•	•	s	С	С	С	

Vicia sativa

* These rates apply only to sites where an established competitive turf is present.

WEEDS CONTROLLED OR SUPPRESSED WITH Roundup PLUS OUST*

NOTE: C

C = Control

S = Suppression

	Roi	undur	+ C	UST			
Roundup (FL. OZ/A) WEED + SPECIES OUST (OZ/A)	8 + 1 4	12	12 + 12	16 + 4	_	12 + 1	16 + 1
Barley, little Hordeum pusilium	С	С	С	С	С	С	С
Bedstraw, catchweed Galium aparine	С	С	С	С	С	С	С
Bluegrass, annual Poa annua	S	С	С	С	С.	С	С
Chervil Chaerophyllum tainturieri	С	С	С	С	С	С	С
Chickweed, common Stellaria media	S	С	С	С	C	С	С
Clover, crimson Trifolium incarnatum	S	S	S	S	С	С	С
Clover, large hop Trifolium campestre	•	•	S	S	S	С	С
Fescue, tall Festuca arundinaceae	•	•	•	•	•	S	S
Geranium, Carolina Geranium carolinianum	•	S	S	С	С	С	С
Henbit Lamium amplexicaule	•	S	С	С	С	С	С
Ryegrass, Italian	•	S	s	С	С	С	С

Lolium multiflorum

Speedwell, corn Veronica arvensis	S	С	С	С	С	С	С
Vetch, common Vicia sativa	С	С	С	С	С	С	С

* These rates or mixtures of rates apply only to sites where an established competitive turf is present.

RELEASE OF ACTIVELY GROWING BERMUDAGRASS

When applied as directed, this product will aid in the release of bermudagrass by providing control of annual species listed in the ''WEEDS CONTROLLED'' section of this and the Oust label, and suppression or partial control of certain perennial weeds.

For control or suppression of those annual species listed on this label, use 1 to 3 pints of this product as a broadcast spray in 10 to 25 gallons of spray solution per acre. Use the lower rate when treating annual weeds below 6 inches in height (or length of runner in annual vines). Use the higher rate as weeds increase in size or as they approach flower or seedhead formation.

Use the higher rate of this product for partial control of the following perennial species. Use the lower rates for suppression of growth. For best results, see the ''Weeds Controlled'' section of this label for proper stage of growth.

Bahiagrass

. Paspalum notatum

Bluestem, silver

Andropogon saccharoides

Fescue, tall

Festuca arundinacea

Johnsongrass*

Sorghum halepense

Trumpetcreeper**

Campsis radicans

Vaseygrass

Paspalum urvillei

^{*}Control at the higher rates.

**Suppression at higher rates only.

This product may be tank-mixed with Oust. If tank-mixed, use no more than 1 to 2 pints per acre of this product with 1 to 2 ounces of Oust per acre.

Use the lower rates of both mixtures to control annual weeds below 6 inches in height (or runner length in annual vines) that are listed in the 'WEEDS CONTROLLED' section of this booklet and the Oust label. Use the higher rates as annual weeds increase in size and approach the flower or seedhead stages.

Use the higher rates of this product to provide partial control of the following perennial weeds. Use the lower rates for suppression of growth.

Bahiagrass

Paspalum notatum

Bluestem, silver

Andropogon saccharoides

Broomsedge

Andropogon virginicus

Dock, curly

Rumex crispus

Dogfennel

Eupatorium capilliforium

Fescue, tall

Festuca arundinacea

Johnsongrass*

Sorghum halepense

Poorjoe**

Diodia teres

Trumpetcreeper*

Campsis radicans

Vaseygrass

Paspalum urvillei

Vervain, blue

Verbena hastata

- *Suppression at higher rates only.
- **Control at the higher rates.

Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment but regrowth will occur under moist conditions. Repeat applications in the same season are not recommended, since severe injury may result.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

COOL SEASON TURE GROWTH REGULATION

When applied as directed, this product will suppress growth and seedhead development of listed turf species in industrial sites.

This product is recommended for management of coarse turf on roadside rights-of-way or other industrial areas. Do not use on high-quality turf or other areas where some turf color changes cannot be tolerated. Slight turf discoloration may occur but turf will regreen and regrow under moist conditions as effects of this product wear off.

Apply 4 to 6 fluid ounces of this product per acre alone or in a recommended tank mixture. Spray volumes of 10 to 40 gallons per acre are recommended.

When using this product, mix 2 quarts of a nonionic surfactant per 100 gallons of spray solution.

This product can be used for growth and seedhead suppression of:

Tall Fescue Smooth Brome

For best results, apply this product in a recommended tank mixture to actively growing turfgrasses after greenup in the spring of the year. For suppression of seedheads, applications must be made before boot-to-seedhead stage of development. Applications made from seedhead emergence until maturity may result in turf discoloration or injury.

After mowing or removal of seedheads, this product in a recommended tank mixture may also be used to suppress the growth of certain turfgrasses. Allow turf to recover from stress caused by heat, drought, or mowing before making applications. Applications made to turf under stress may increase the potential for discoloration or injury.

ANNUAL GRASSES

For growth suppression of some annual grasses such as annual ryegrass, wild barley and wild oats, apply 3 to 4 fluid ounces of this product in 10 to 40 gallons of spray solution per acre. Applications should be made when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments made after seedhead emergence may cause injury to the desired grasses.

TANK MIXTURES

For the following tank mixtures, consult each product label for weeds controlled and the correct stage of application. Do not treat turf under stress.

Tank mixtures plus 2,4-D Amine

For additional weed control benefits, up to 1 pound a.i. per acre of 2,4-D amine may be added to the following tank mixtures. Consult the label for 2,4-D amine for weeds controlled.

TALL FESCUE

Roundup plus Telar™

For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.5 ounce of Telar per acre.

This tank mixture can also be applied after mowing or removal of tall fescue seedheads for turf growth suppression. Make only one of the above applications per growing season.

Roundup plus Oust

For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

Roundup plus Escort™

This tank mixture can be applied after mowing or removal of tall fescue seedheads for turf growth suppression and control or partial control of some annual weeds. Use up to 1/3 ounce of Escort per acre.

NOTE: This product is not registered for use with Escort in California.

SMOOTH BROME

Roundup plus Oust

For suppression of smooth brome growth and seedheads and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

BAHIAGRASS SEEDHEAD AND VEGETATIVE SUPPRESSION

When applied as directed in the indicated noncrop areas (roadsides, airports, golf course roughs, and plant sites), this product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with single applications and approximately 120 days with sequential applications.

Apply this product 1 to 2 weeks after full greenup of bahiagrass or after the bahiagrass has been mowed to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 fluid ounces per acre of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume may be made at approximately 45 day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product per acre plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces per acre plus nonionic surfactant may be made approximately 45 days after the last application.

A tank mixture of this product plus Oust may be applied only on roadsides for seedhead inhibition and vegetative suppression. Apply 6 fluid ounces per acre of this product plus 0.25 ounce per acre of Oust, plus 0.5 to 1 percent nonionic surfactant by total spray volume 1 to 2 weeks following an initial spring mowing. When using this product plus Oust for suppression of bahiagrass, make only 1 application per year.

CROPPING SYSTEMS

When applied as directed for ''CROPPING SYSTEMS'', under the conditions described, this product controls annual and perennial weeds listed on this label, prior to the emergence of direct seeded crops or prior to transplanting of crops listed on this label.

See ''GENERAL INFROMATION'' and ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' sections of this label for essential product performance information.

See the following ''CROPPING SYSTEMS'' sections for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS OR FRUIT OF DESIRABLE CROPS, PLANTS, TREES OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Except as otherwise specified on this label, repeat treatments must be made before the crop emerges in accordance with the instructions of this label.

Except as otherwise specified in a crop section of this label, the combined total of all treatments must not exceed 8 quarts per acre of this product per year.

Do not plant subsequent crops other than those on the label for 30 days following application.

Do not harvest or feed treated vegetation for 8 weeks following application. Following spot treatment or selective equipment use, allow 14 days before grazing domestic livestock or harvesting forage grasses and legumes.

ROW CROPS

CORN (ALL) *
COTTON*
PEANUTS
SORGHUM (MILO) *
SOYBEANS*
SUGAR CANE*

CEREAL GRAINS

BARLEY*
BUCKWHEAT*

MILLET (PEARL, PROSO)*
OATS*
RICE**
RYE*
TRITICALE*
WHEAT (ALL)*
WILD RICE*

CITRUS

CALAMONDIN
CHIRONJA
CITRON
GRAPEFRUIT
KUMQUAT
LEMON
LIME
MANDARIN ORANGE
ORANGE (ALL)
PUMMELO
TANGELO
TANGERINE
TANGORS

TREE NUTS

ALMOND
BEECHNUT
BRAZIL NUT
BUTTERNUT
CASHEW
CHESTNUT
CHINQUAPIN
FILBERT (HAZELNUT)
HICKORY NUT
MACADAMIA
PECAN
PISTACHIO
WALNUT (BLACK, ENGLISH)

VINE CROPS

GRAPES KIWI FRUIT

TREE FRUITS

APPLE
APRICOTS
CHERRY (SWEET, SOUR)
LOQUAT
MAYHAW
NECTARINE
OLIVE
PEACH

PEAR PLUM/PRUNE (ALL) QUINCE

VEGETABLES

ARTICHOKE, **JERUSALEM** ASPARAGUS* BEANS (ALL) BEET GREENS BEETS (RED, SUGAR) BROCCOLI (ALL) BRUSSELS SPROUTS CABBAGE (ALL) CABBAGE, CHINESE CANTALOUPE*** CARROT CAULIFLOWER CASABA MELON*** CELERY CHARD, SWISS CHICORY COLLARDS CRENSHAW MELON*** CUCUMBER*** EGGPLANT*** **ENDIVE** GARLIC*** GOURDS*** GROUND CHERRY*** HONEYDEW MELON*** HONEY BALL MELON*** HORSERADISH KALE KOHLRABI LEEK LENTILS LETTUCE MANGO MELON*** MELONS (ALL) *** MUSKMELON*** MUSTARD GREENS OKRA ONION RAPE GREENS PARSLEY PARSNIPS PEAS (ALL) PEPPER (ALL) *** PERSIAN MELON*** POTATO (IRISH, SWEET) · PUMPKIN*** RADISH RHUBARB

RUTABAGA
SPINACH (ALL)
SQUASH (SUMMER, WINTER) ***
TOMATILLO ***
TOMATO ***†
TURNIP
WATERCRESS ***
WATERMELON ***
YAMS

SMALL FRUITS AND BERRIES

BLACKBERRY
BLUEBERRY
BOYSENBERRY
CRANBERRY
CURRANT
DEWBERRY
ELDERBERRY
GOOSEBERRY
HUCKLEBERRY
LOGANBERRY
OLALLIEBERRY
RASPBERRY (BLACK, RED)

FORAGE CROPS AND LEGUMES

ALFALFA*
FORAGE GRASSES*
FORAGE LEGUMES*

TROPICAL CROPS

ACEROLA **ATEMOYA AVOCADO** BANANA (PLANTAINS) BREADFRUIT CANISTEL CARAMBOLA CHERIMOYA COCOA BEANS COFFEE DATES FIGS **GENIP GUAVA JABOTICABA** JACKFRUIT LONGAN LYCHEE MANGO PAPAYA PASSION FRUIT PERSIMMONS

PINEAPPLE****
POMEGRANATE
SAPODILLA
SAPOTE (BLACK, MAMEY, WHITE)
SOURSOP
SUGAR APPLE
TAMARIND
TEA

- * Spot treatments may be applied in these crops.
- ** Do not treat rice fields or levees when the fields contain flood water.
- *** Apply only prior to planting. Allow at least 3 days between application and planting.
- ****Do not feed or graze treated pineapple forage following application.
- † Use is restricted to direct seeded crops only.

When applying this product prior to transplanting crops into plastic mulch, care must be taken to remove residues of this product from the plastic prior to transplanting. Residues can be removed by 0.5 inch natural rainfall or by applying water via a sprinkler irrigation system.

Spot Treatment (Only those crops with ''*' can be spot treated.)—Applications in growing crops must be made prior to heading of small grains and milo, initial pod set in soybeans, silking of corn, or boll opening on cotton.

For forage grasses and forage legumes see ''SPOT TREATMENT'' in the ''PASTURES'' section of ''CROPPING SYSTEMS'' in this label.

For dilution and rates of application using boom or hand-held equipment, see ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' and ''WEEDS CONTROLLED'' sections of this label.

NOTE: FOR FORAGE GRASSES AND FORAGE LEGUMES, NO MORE THAN ONE-TENTH OF ANY ACRE SHOULD BE TREATED AT ONE TIME. FOR ALL OTHER CROPS, DO NOT TREAT MORE THAN 10 PERCENT OF THE TOTAL FIELD AREA TO BE HARVESTED.

THE CROP RECEIVING SPRAY IN TREATED AREA WILL BE KILLED. TAKE CARE TO AVOID DRIFT OR SPRAY OUTSIDE TARGET AREA FOR THE SAME REASON.

Selective Equipment—This product may be applied through recirculating sprayers, shielded applicators or wiper applicators in cotton and soybeans. Shielded and wiper applicators may also be used in tree crops and grapes. Wiper applicators may be used in

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rutabagas, forage grasses and forage legumes, including pasture sites and grain sorghum (milo).

See the ''SELECTIVE EQUIPMENT' part of the ''APPLICATION EQUIPMENT and TECHNIQUES' section of this label for information on proper use and calibration of this equipment.

Allow at least the following time intervals between application and harvest:

* Do not use roller applicators. Do not feed or graze treated milo fodder. Do not ensile treated vegetation.

ASPARAGUS

When applied as directed for ''CROPPING SYSTEMS'' under the conditions described, this product controls weeds listed on this label in asparagus.

For specific rates of applications and instructions for control of various annual and perennial weeds, see the ''WEEDS CONTROLLED'' section of this label.

Prior to Crop Emergence—Apply this product prior to crop emergence for the control of emerged labeled annual and perennial weeds. DO NOT APPLY WITHIN A WEEK BEFORE THE FIRST SPEARS EMERGE.

Spot Treatment—Apply this product immediately after cutting, but prior to the emergence of new spears. Do not treat more than 10 percent of the total field area to be harvested. Do not harvest within 5 days of treatment.

Postharvest—Apply this product after the last harvest and all spears have been removed. If spears are allowed to regrow, delay application until ferns have developed. Delayed treatments should be applied as directed or shielded spray in order to avoid contact of the spray with ferns, stems or spears. Direct contact of the spray with the asparagus may result in serious crop injury.

NOTE: Select and use recommended types of spray equipment for postemergence postharvest applications. A directed spray is any application where the spray pattern is aligned in such a way as to avoid direct contact of the spray with the crop. A shielded



spray is any application where a physical barrier is positioned and maintained between the spray and the crop to prevent contact of spray with the crop.

BERRIES AND SMALL FRUITS

For cranberries, apply after fruit set and no later than 30 days before harvest.

For other berries, apply as a preplant broadcast application, or as a directed spray or wiper application post-planting.

Wiper applicators may be used in cranberries in accordance with instructions in this section.

See ''GENERAL INFORMATION'' and ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' sections of this label for essential product performance information.

See the ''SELECTIVE EQUIPMENT'' part of the ''APPLICATION EQUIPMENT and TECHNIQUES'' section of this label for information on recommended use and calibration of this equipment.

Allow a minimum of 14 days between last application and harvest of small fruits and berries.

For Wick or other Wiper Applicators—Mix 1 gallon of this product in 4 gallons of water to prepare a 20 percent solution. Apply the solution to emerged weeds. Apply after cranberry fruit set and no later than 30 days before harvest.

In severe infestations, reduce equipment ground speed to ensure that adequate amounts of this product are wiped on the weeds. A second treatment in the opposite direction may be beneficial.

Do not permit herbicide solution to contact desirable vegetation, including green shoots, cames or foliage.

FALLOW AND REDUCED TILLAGE SYSTEMS

FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO SUPPLEMENTAL LABEL.

Use this product in fallow and reduced tillage systems for control of annual weeds prior to emergence of crops listed in this label. Refer to the ''WEEDS CONTROLLED'' section of this label for specific rates and instructions. This product may be applied using ground or aerial spray equipment. See the ''APPLICATION EQUIPMENT and TECHNIQUES'' section of this label for instructions.

TANK MIXTURES

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Roundup plus BANVEL plus NONIONIC SURFACTANT

Roundup plus 2,4-D plus NONIONIC SURFACTANT

Roundup plus GOALT plus NONIONIC SURFACTANT

DO NOT APPLY BANVEL OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA.

Applications of 2,4-D or Banvel must be made at least 7 days prior to planting corn.

The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed species. Some crop injury may occur if Banvel is applied within 45 days of planting. Refer to the Banvel and 2,4-D labels for cropping restrictions and other use instructions.

Roundup plus Goal Tank Mixtures

This product alone or in tank mixtures with Goal plus 0.5 to 1 percent nonionic surfactant by total spray volume will provide control of those weeds listed below.

Make applications when weeds are actively growing and at the recommended stages of growth. Avoid spraying when weeds are subject to moisture stress, when dust is on the foliage or when straw canopy covers the weeds.

Roundup 12 fluid oz/acre

Wheat Barley	18"* 12"
Bluegrass,	
annual	6"
Barnyardgrass	6"
Rye	6"

Roundup 16 fluid oz/acre

Annual grasses at left plus:

Ryegrass,	
annual	6 "
Chickweed	6"
Groundsel	6"
Marestail	6"

Rocket, London	6"
Shepherdspurse	6"
Crabgrass	12"
Johnsongrass,	
seedling	12"
Lambsquarters	12"
Oats, wild	12"
Pigweed, redroot	12"
Mustards	12"

NOTE: Use 32 fluid ounces of this product per acre where heavy weed densities exist.

Roundup 12 fluid oz/acre +		Roundup 16 fluid oz/acre +			
GOAL** 2 to 4 fluid	oz/acre	GOAL** 2 to 4 fluid	oz/acre		
Annual grasses above plus:	e	Annual weeds above plus:			
Cheeseweed, common Chickweed Groundsel Rocket, London Shepherdspurse	3" 3" 6" 6"	Cheeseweed, common Groundsel Chickweed Rocket, London Shepherdspurse	6" 6" 12" 12"		

NOTE: Use 32 fluid ounces of this product per acre in mixtures with 2 to 4 fluid ounces of Goal per acre where heavy weed densities exist.

* Maximum height or length in inches.

Burner Strategie Berger

** Use the higher rate of Goal when weeds approach maximum recommended height or stands are dense.

These recommended tank mixtures may be applied using ground or aerial spray equipment. Refer to the ''WEEDS CONTROLLED'' section of this label for specific rates and instructions.

ECOFARMING SYSTEMS

The recommendations made in this section are not registered for use in California.

The Ecofarming System consists of the following rotation: winter wheat, corn/sorghum, ecofallow.

Use the following tank mixtures for control of emerged annual weeds before planting corn or sorghum in the Ecofarming System.

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Roundup at 16 to 20 fluid ounces per acre plus

2,4-D at 0.375 to 0.5 pound a.i. per acre plus

ATRAZINE at 0.75 to 1 pound a.i. per acre plus

LASSO® at 2.5 to 3 quarts per acre

The above tank mixture should be applied in 28-0-0 or 32-0-0 liquid fertilizer carrier at 20 to 30 gallons per acre. The liquid fertilizer may be diluted with water to achieve the desired carrier volume.

WEEDS CONTROLLED - The following weeds, up to a maximum height of 4 inches, will be controlled:

Brome, downy
Bromus tectorum

Cheat

Bromus secalinus

Foxtail, green Setaria viridis

Foxtail, yellow Setaria lutescens

Kochia*
Kochia scoparia

Lettuce, prickly
Lactuca serriola

Pigweed, redroot
Amaranthus retroflexus

Thistle, Russian Salsola kali

Wheat, volunteer Triticum aestivum

*For improved control of kochia, add 4 fluid ounces per acre (0.125 pound a.i. per acre) of Banvel to the above tank mixture.

Risk of crop injury from 2,4-D or Banvel can be reduced by applying this treatment 7 to 14 days before planting.

Refer to the label booklet for Lasso herbicide for preemergence weed control achieved by this tank mixture.

Refer to the specific product labels for crop rotation restrictions and cautionary statements for all products used in these tank mixtures.

AID TO TILLAGE

This product, when used in conjunction with preplant tillage practices, will provide control of downy brome, cheat, volunteer wheat, tansy mustard and foxtail. Apply 8 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make applications when weeds are actively growing and before they are 6 inches in height. Application must be followed by conventional tillage practices no later than 15 days after treatment and before regrowth occurs. Allow at least 1 day after application before tillage. Tank mixtures with residual herbicides may result in reduced performance.

PASTURES

Apply this product prior to planting forage grasses and legumes.

Pasture or Hay Crop Renovation—When applied as a broadcast spray, this product controls the annual and perennial weeds listed in this label prior to planting forage grasses or legumes. Remove domestic livestock before application and wait 8 weeks after application before grazing or harvesting.

Spot Treatment—When applied as a spot treatment as recommended, this product controls annual and perennial weeds listed in this label which are growing in pastures, forage grasses and forage legumes composed of bahiagrass, bermudagrass, bluegrass, brome, fescue, orchardgrass, ryegrass, timothy, wheatgrass, alfalfa or clover.

Wiper Application—When applied as directed, this product controls or suppresses the weeds listed under ''WIPER APPLICATORS" in the ''SELECTIVE EQUIPMENT'' section of this label.

For spot treatment and wiper application, apply in areas where the movement of domestic livestock can be controlled. No more than onetenth of any acre should be treated at one time. Further applications may be made in the same area аt intervals. Remove domestic livestock before application and wait 14 days after application before grazing livestock or harvesting.

SUGARCANE

When applied as directed for ''CROPPING SYSTEMS'', under the conditions described, this product controls those emerged annual and perennial weeds listed on this label growing in or around sugarcane or in fields to be planted to sugarcane. This product will also control undesirable sugarcane.



NOTE: Where repeat treatments are necessary, do not exceed a total of 10.6 quarts of this product per acre per year. Do not apply to vegetation in or around ditches, canals or ponds containing water to be used for irrigation.

Broadcast Treatment—Apply this product in 10 to 40 gallons of water per acre on emerged weeds growing in fields to be planted to sugarcane.

For specific rates of application and instructions for control of various annual and perennial weeds, see the ''WEEDS CONTROLLED'' section of this label.

For removal of last stubble or ratoon cane, apply 4 to 5 quarts of this product in 10 to 40 gallons of water per acre to new growth having at least 7 or more new leaves. Allow 7 or more days after application before tillage.

Spot Treatment in or Around Sugarcane Fields—For dilution and rates of application using hand-held equipment, see ''MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'' and ''WEEDS CONTROLLED'' sections of this label.

For control of volunteer or diseased sugarcane, make a 1 percent solution of this product in water and spray to wet the foliage of vegetation to be controlled.

NOTE: When spraying volunteer or diseased sugarcane, the plants should have at least 7 new leaves.

Avoid spray contact with healthy cane plants since severe damage or destruction may result.

Do not feed or graze treated sugarcane forage following application.

CONSERVATION TILLAGE, MINIMUM TILLAGE AND NO-TILL SYSTEMS CORN AND SOYBEANS Tank Mixtures

The recommendations made in this section are not registered for use in California.

When applied as recommended under the conditions described, the tank mixtures listed in this section control many emerged weeds, and give preemergence control of many annual weeds where corn or soybeans will be planted directly into a cover crop, established sod or in previous crop residues.

Refer to specific product labels for crop rotation restrictions and cautionary statements of all products used in these tank mixtures.

For mixing instructions, see the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.

Apply these tank mixtures in 10 to 20 gallons of water or 10 to 60 gallons of nitrogen solution per acre before, during or after planting. Do not apply these mixtures after crop emergence.

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution. The addition of 1 to 2 percent dry ammonium sulfate by weight may increase the performance of this product.

When using these tank mixtures, do not exceed 4 quarts of this product per acre.

CORN

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

> LASSO®/ALACHLOR ATRAZINE LARIAT® CYANAZINE BULLET® SIMAZINE DUAL™ PROWL™ BICEPTH MICRO-TECH®

PARTNER®

For improved burndown, this product may be tank-mixed with 2,4-D or dicamba. Applications of 2,4-D or dicamba must be made at least 7 days prior to planting corn. See the "WEEDS CONTROLLED" section for specific rate information.

SOYBEANS

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

> CANOPY LOROX™ PLUS COMMANDTM PREVIEW™ DUAL™ PROWL™ GEMINI™ TURBO™ SCEPTER™ LASSO®/ALACHLOR LEXONETH SENCOR™ LINURON SOUADRON PURSUIT™ PURSUIT PLUS™ PARTNER® MICRO-TECH®

For improved burndown, this product may be tank-mixed with the following herbicides:

> 2,4-DB 2.4-D

* See the label for 2,4-D for intervals between application and planting.

CORN AND SOYBEANS

Annual Weeds—For difficult—to—control weeds such as fall panicum, barnyardgrass, crabgrass, shattercane and broadleaf signalgrass up to 2 inches tall, and Pennsylvania smartweed up to 6 inches tall, apply this product at 2 pints per acre in these tank mixtures. For other labeled annual weeds, apply 1 to 1.5 pints of this product per acre when weeds are less than 6 inches tall, and 2 to 3 pints when weeds are over 6 inches tall. For a complete list of annual weeds controlled, see the "WEEDS CONTROLLED" section of this label.

Perennial Weeds--At normal application times in minimum tillage systems, perennial weeds may not be at the proper stage of growth for control. See the "WEEDS CONTROLLED" section of this label for the proper stage of growth for perennial weeds.

Use of 2 to 4 quarts of this product per acre in the tank mixtures mentioned above, under these conditions provides top kill and reduces competition from many emerged perennial grass and broadleaf weeds. For emerged perennial weeds controlled, see the "WEEDS CONTROLLED" section of this label.

To obtain the desired stage of growth, it may be necessary to apply this product alone in the late summer or fall and then follow with a label-approved, seedling weed control program at planting.

USE OF THESE TANK MIXTURES FOR BERMUDAGRASS OR JOHNSONGRASS CONTROL IN MINIMUM TILLAGE SYSTEMS IS NOT RECOMMENDED. For bermudagrass control, follow the instructions under "CONTROL OF PERENNIAL WEEDS" section of this label and then use a label-approved, seedling weed-control program in a minimum tillage or conventional tillage system. For Johnsongrass control, follow instructions under "CONTROL OF PERENNIAL WEEDS" section of this label, and then use a label-approved, seedling weed-control program with conventional tillage.

PREHARVEST APPLICATIONS

When applied as directed under the conditions described, this product controls annual and perennial weeds listed on this label prior to the harvest of cotton and soybeans.

SOYBEANS

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Apply after pods have set and lost all green color. Allow a minimum of 7 days between application and harvest of soybeans. Care should be taken to avoid excessive seed shatter loss due to ground application equipment.

Do not graze or harvest treated crop for livestock feed within 25 days of last preharvest application.

DO NOT APPLY MORE THAN 6 QUARTS PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS.

DO NOT APPLY MORE THAN 1 QUART PER ACRE OF THIS PRODUCT BY AIR.

For specific rates and application instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of the Roundup label booklet.

This product may be applied by both ground and aerial application equipment. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of the Roundup label booklet for instructions for ground and aerial applications.

NOTE: It is not recommended that soybeans grown for seed be treated because a reduction in germination or vigor may occur.

The use of this product for preharvest soybeans is not registered in California.

COTTON

Broadcast Applications—This product may be applied using either aerial or ground spray equipment. For ground applications with broadcast equipment, apply this product in 10 to 20 gallons of water per acre. For aerial applications, apply this product in 3 to 10 gallons of water per acre.

FOR AERIAL APPLICATIONS, REFER TO THE "APPLICATION EQUIPMENT AND TECHNIQUES" AND "AERIAL EQUIPMENT" SECTIONS OF THIS LABEL.

FOR AERIAL APPLICATIONS IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR.

Weed Control—For specific rates of application and instructions for control of various annual and perennial weeds for this product used alone or in the following tank mixtures, see the "WEEDS CONTROLLED" section of this label.

To control Johnsongrass using multiple-directed or broadcast over-the-top spray equipment, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure complete coverage.

For partial control of field bindweed, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre. Apply when bindweed is actively growing and 12 inches or greater in length. Reduced performance may result if bindweed is under drought stress.

TANK MIXTURES

Roundup plus DEF^{m4} 6
Roundup plus Folex^{m4}
Roundup plus Prep^{m4}
Roundup plus Prep plus DEF 6 or Folex

When applied as recommended under the conditions described, these tank mixtures control annual and perennial weeds listed on this label prior to the harvest of cotton. For application guidelines, precautions and use-rates, refer to the DEF, Folex and Prep labels.

This product when tank mixed with DEF 6 or Folex defoliants may provide enhancement of cotton leaf drop and regrowth inhibition.

Timing of Application--Apply this product or these tank mixtures for preharvest weed control after 60 percent of the cotton bolls have opened.

NOTE: DO NOT APPLY TO CROPS GROWN FOR SEED. Allow a minimum of 7 days between application and harvest. Do not feed or graze treated cotton forage or hay following preharvest applications.

TREE AND VINE CROPS

This product is recommended for weed control in established groves, vineyards, and orchards, or for site preparation prior to transplanting crops listed in this section. Applications may be made with boom equipment, CDA, shielded sprayers, hand-held and high-volume wands, lances, orchard guns, or with wiper applicator equipment, except as directed in this section. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for specific information on use of equipment.

When applying this product, refer to the "WEEDS CONTROLLED" section of this label and to specific recommendations in this section for rates to be used.

NOTE

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual weed control. For subsequent weed control, use repeated applications of this product. Do not apply more than 10.6 quarts of this product per acre per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

AVOID PAINTING OUT STUMPS WITH THIS PRODUCT AS INJURY RESULTING FROM ROOT GRAFTING MAY OCCUR IN ADJACENT TREES.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

For specific rates of applications and instructions, see the "WEEDS CONTROLLED" section of this label, and to specific recommendations which follow.

MIDDLES MANAGEMENT

FOR ANNUAL WEEDS IN MIDDLES BETWEEN ROWS OF TREE AND VINE CROPS

For citrus crops treat uniformly between trees.

Roundup Roundup plus GOAL™

This product alone or in mixtures with Goal will control or suppress the annual weeds listed below.

Apply the recommended rates of this product, either alone or in mixtures with Goal, plus 0.5 to 1 percent nonionic surfactant by spray volume in 3 to 10 gallons of water per acre. Apply when weeds are actively growing and less than 6 inches in height or diameter. If weeds are under drought stress, irrigate prior to application. Reduced control may occur if weeds have been mowed prior to application. Up to 48 fluid ounces per acre of this product may be used to control weeds, which have been mowed, are stressed, or are growing in dense populations.

WEED SPECIES	MAXIMUM HEIGHT/DIAMETER (INCHES)	Roundup	PER ACRE GOAL FLUID OUNCES)
Barley Hordeum vulgare Bluegrass, annual Poa annua	6	8	
Barnyardgrass Echinochloa crus Chickweed, common Stellaria media Red Maids Calandrinia cili	-	12	
Crabgrass Digitaria spp. Fleabane, flaxleaf Conyza bonariens		16	OR .
Groundsel, common Senecio vulgaris Junglerice Echinochloa colo Lambsquarters, com Chenopodium albu Pigweed, redroot Amaranthus retro Rocket, London Sisymbrium irio Ryegrass, common Lolium multiflor Shepherdspurse Capsella bursa-p Sowthistle, annual Sonchus oleraceu	num mon m flexus um eastoris	16 to 32	+ 4 to 16**
Cheeseweed, common Malva spp.	3	12 to 32	+ 4 to 16
Cheeseweed, common Malva spp. Filaree* Erodium spp. Borseweed/Marestai Conyza canadensi Nettle, stinging Urtica dioica Purselane, common* Purtulaca olerac	1 s	16 to 32	+ 4 to 16

^{*} Suppression only.

**The mixture of this product plus Goal is recommended when weeds are stressed or growing in dense populations.

STRIPS

FOR ANNUAL AND PERENNIAL WEEDS IN STRIPS OF TREE AND VINE CROPS

TANK MIXTURES WITH RESIDUAL HERBICIDES

When applied as a tank mixture, this product provides control of the emerged annual weeds and control or suppression of emerged perennial weeds listed in this label. The following residual herbicides will provide preemergence control of those weeds listed in the individual product labels.

	Roundup plus GOALT 1.6E	
	Roundup plus KARMEXT DF	
	Roundup plus KROVAR® I	
	Roundup plus KROVAR II	
•	Roundup plus SIMAZINE, PRINCEP CALIBER 90	
	Roundup plus SIMAZINE 4L	
•	Roundup plus SIMAZINE 80W	
•	Roundup plus SOLICAM 80DF	
	Roundup plus SURFLANT AS	
	Roundup plus SURFLAN 75W	
•	Roundup plus SIMAZINE (80W, or 4L, or PRINCEP CALIBER 90) plus SURFLAN (AS or 75W)	
=	Roundup plus GOAL (1.6E) plus SURFLAN (AS or 75W)	<u>.</u>
•	Roundup plus GOAL (1.6E) plus SIMAZINE (80W, or 4L, or PRINCEP CALIBER 90)	
	Roundup plus GOAL (1.6E) plus SURFLAN (AS or 75W) plus SIMAZINE (80W, 4L, or PRINCEP CALIBER 90)	

Do not apply these tank mixtures in Puerto Rico.

When tank-mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution.

Refer to the individual product labels for specific crops, rates, geographical restrictions and precautionary statements.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the labels of all products.

RECOMMENDED RATES

Annual Weeds - Apply 1 to 5 quarts per acre of this product in these tank mixtures. Use rates at the higher end of the recommended range when weeds are stressed, growing in dense populations or are greater than 12 inches tall.

Perennial Weeds - Apply 1 pint to 5 quarts per acre of this product in these tank mixtures to control or suppress perennial weeds. Follow the recommendations in the "WEEDS CONTROLLED" section of this label for stage of growth and application rates for specific perennial weeds.

Roundup plus GOAL plus SIMAZINE/SURFLAN

This product plus low rates of Goal in 3-way or 4-way mixtures with simazine and/or Surflan will provide postemergence control of the weeds listed below.

Refer to the individual simazine and Surflan labels for preemergence rates, weeds controlled, precautionary statements and other important information.

Apply these tank mixtures in 3 to 40 gallons of water. Add 0.5 to 1 percent nonionic surfactant by total spray volume to the spray solution.

Apply 1 to 5 quarts per acre of this product plus 4 to 48 fluid ounces per acre of Goal plus labeled rates of simazine and/or Surflan to control the following weeds:

Barley, wild

Hordeum leporinum
Bluegrass, annual

Poa annua
Cheeseweed, common

Malva spp.
Chickweed, common

Stellaria media
Filaree*

Erodium spp.
Fleabane, flaxleaf

Conyza bonariensis

Groundsel, common
Senecio vulgaris
Horseweed/Marestail
Conyza canadensis
Nettle, stinging
Urtica dioica
Pineappleweed
Matricaria matricariodes
Rocket, London
Sisymbrium irio
Shepherdspurse
Capsella bursa-pastoris
Sowthistle, annual
Sonchus oleraceus

*Use a minimum of 1.5 quarts of this product in these mixtures.

NOTE: This recommendation does not preclude the use of Goal in these mixtures at higher, labeled rates for preemergence weed control.

PERENNIAL GRASS SUPPRESSION ORCHARD FLOORS

When applied as directed, this product will suppress vegetative growth as indicated below.

Bahiagrass

This product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with a single application and approximately 120 days with sequential applications. Apply this product 1 to 2 weeks after full green-up or after mowing to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus nonionic surfactant may be made at approximately 45-day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces may be made approximately 45 days after the last application.

Bermudagrass

For burndown, apply 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20

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gallons of water per acre. Use 1 quart of this product in 3 to 20 gallons of water per acre east of the Rocky Mountains. Use 1 to 2 quarts of this product in 3 to 10 gallons of water per acre west of the Rocky Mountains. Use this treatment only if reduction of the bermudagrass stand can be tolerated. When burndown is required prior to harvest, allow at least 21 days to ensure sufficient time for burndown to occur.

Suppression only (east of the Rocky Mountains)—Apply 6 to 16 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Rates of 6 to 10 fluid ounces of this product plus nonionic surfactant should be used in shaded conditions or where a lesser degree of suppression is desired. Sequential applications may be made when regrowth occurs and bermudagrass injury and stand reduction can be tolerated.

Suppression only (west of the Rocky Mountains)—Apply 16 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre to bermudagrass up to 6 inches in height and no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Sequential applications may be made when regrowth occurs and bermudagrass injury and stand reduction can be tolerated.

Cool Season Grass Covers

For suppression of tall fescue, fine fescue, orchardgrass and quackgrass, apply 8 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. For best suppression, add ammonium sulfate to the spray solution at a rate of 2 percent by weight or 17 pounds per 100 gallons of spray solution.

For suppression of Kentucky bluegrass covers, apply 6 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant. Do not add ammonium sulfate.

For best results, mow cool-season grass covers in the spring to even their height and apply the recommended rate of this product 3 to 4 days after mowing. Avoid treating cool season grass covers under poor growing conditions, such as drought stress (drip irrigation), disease or insect damage.

LOW VOLUME APPLICATION (FLORIDA AND TEXAS)

For burndown or control of the weeds listed, apply the recommended rates of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 30 gallons of water per acre. Where weed foliage is dense, use 10 to 30 gallons of water per acre.

Annual Weeds

Goatweed—Apply 2 to 3 quarts per acre of this product plus 17 pounds of ammonium sulfate per 100 gallons of water plus 0.5 to 1 percent nonionic surfactant by total spray volume. Apply in 20 to 30 gallons of water per acre when plants are actively growing. Use 2 quarts per acre when plants are less than 8 inches tall and 3 quarts per acre when plants are greater than 8 inches. If goatweed is greater than 8 inches tall, the addition of Krovar II or Karmex may improve control. Use labeled rates for these residual products.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the Krovar II and Karmex labels.

Perennial Weeds

Apply when weeds are actively growing and at the growth stages listed in the ''PERENNIAL WEEDS CONTROLLED'' section of this label. If perennial weeds are mowed, allow weeds to regrow to the recommended stage of growth.

S = Suppression PC = Partial control		<pre>= Burndou = Control</pre>	-		
WEED SPECIES	Ro 1 qt	undup RA 2 qts	TE PER AG		
Bermudagrass Guineagrass	В	•	PC	С	
Texas and Florida Ridge Florida Flatwoods	В	C	C	C	
Paragrass	В	B C	C	Ċ .	
Torpedograss	S	•	PC	С	
······································					

TREE CROPS

Citrus*: calamondin, chironja, citron, grapefruit, kumquat, lemon, lime, mandarin orange, orange, pummelo, tangelo, tangerine, tangors.

Nuts**: almond, beechnut, Brazil nut, butternut, cashew, chestnuts, chinquapin, filbert, hazel nut, hickory nut, macadamia, pecan, pistachio, walnut.

Pome Fruit*: apple, loquat, mayhaw, pear, quince.

Stone Fruit***: apricots, cherries, nectarines, olives, peaches, plums/prunes.

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For cherries, any application equipment listed in this section may be used in all states.

For citron and olives, apply as a directed spray only.

Any application equipment listed in this section may be used in apricots, nectarines, peaches and plums/prunes growing in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Texas, Utah and Washington, except for peaches grown in the states specified in the following paragraph. In all other states use wiper equipment only.

For PEACHES grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee only, apply with a shielded boom sprayer or shielded wiper applicator, which prevents any contact of this product with the foliage or bark of trees. Apply no later than 90 days after first bloom. Applications made after this time may result in severe damage. Remove suckers and low-hanging limbs at least 10 days prior to application. Avoid applications near trees with recent pruning wounds or other mechanical injury. Apply only near trees which have been planted in the orchard for 2 or more years. EXTREME CARE MUST BE TAKEN TO ENSURE NO PART OF THE PEACH TREE IS CONTACTED.

Tropical Fruit: acerola *, atemoya*, avocado*, banana* (plantains)****, breadfruit*, canistel*, carambola*, cherimoya*, cocoa beans*, coffee****, dates*, figs*, genip*, guava*****, jaboticaba*, jackfruit*, longan*, lychee*, mango*, mayhaw*, papaya*****, passion fruit*, persimmons*, pomegranate*, sapodilla*, sapote*, soursop*, sugar apple*, tamarind*, tea*. In coffee and banana, delay applications 3 months after transplanting to allow the new coffee or banana plant to become established.

NOTE:

- * Allow a minimum of 14 days between last application and harvest.
- ** Allow a minimum of 21 days between last application and harvest of these crops.
- *** Allow a minimum of 17 days between last application and harvest.
- ****Allow a minimum of 28 days between last application and harvest.
- *****Allow a minimum of 1 day between last application and harvest.

VINE CROPS

Kiwi Fruit

Grapes: Any variety of table, wine or raisin grape may be treated with any equipment listed in this section.

Applications should not be made when green shoots, canes, or foliage are in the spray zone.

Allow a minimum of 14 days between last application and harvest.

In the northeast and Great Lakes regions, applications must be made prior to the end of bloom stage of grapes to avoid injury.

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A-000.01

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AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI, 63167 U.S.A.